MARITIME REPORTER
AND
ENGINEERING NEWS

SNAME · EUROPORT · ISOSO

Aerial View Of Manhattan Island

89th Annual SNAME Meeting
ISOSO '81
Europort '81
(SEE PAGE 4)

NOVEMBER 1, 1981

BREMER VULKAN

NOW REPRESENTED IN THE UNITED STATES BY

PENCO

The team you can trust for your ships and machinery :

BREMER VULKAN DOES IT ALL
- Routine dry-dockings or lengthenings
- Harbour repairs or extensive conversions
- Reconditioning of engine parts between voyages or most difficult engine repairs
- "Flying Squad" services en-voyage or
- Maintenance of engine plants on a yearly contract basis

Incomparable facilities
- Large dock 331, 60x57, 46x7, 70m, 450 t crane
- Floating dock 170x23x6m, 8 500 t lifting capacity
- Repair quays for simultaneous repair of several vessels, cranage up to 150 t; floating crane
- Repair base at Bremerhaven with floating dock

Machine shops with advanced techniques for any kind of efficient machining of heavy engine parts. Reconditioning of crankshafts in situ. Licensee for MAN engines; Stal-Laval turbines; Foster Wheeler and Babcock & Wilcox boilers.

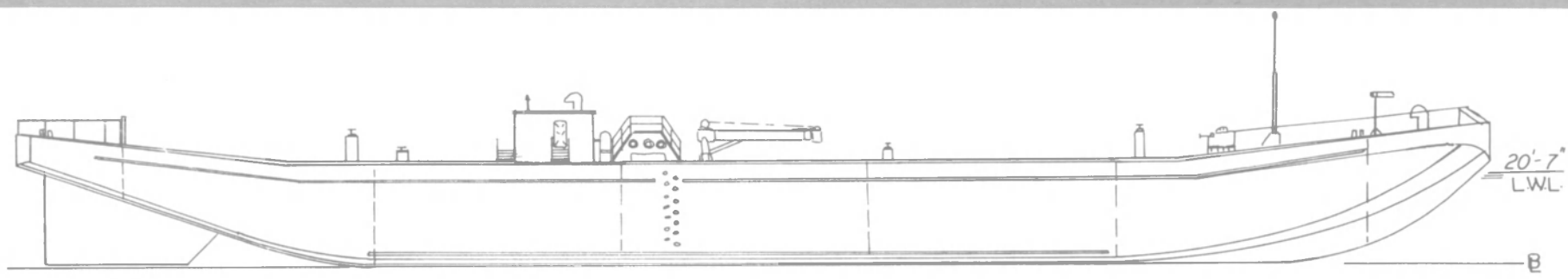
SHIP CARE BEGINS AND ENDS WITH

PENCO

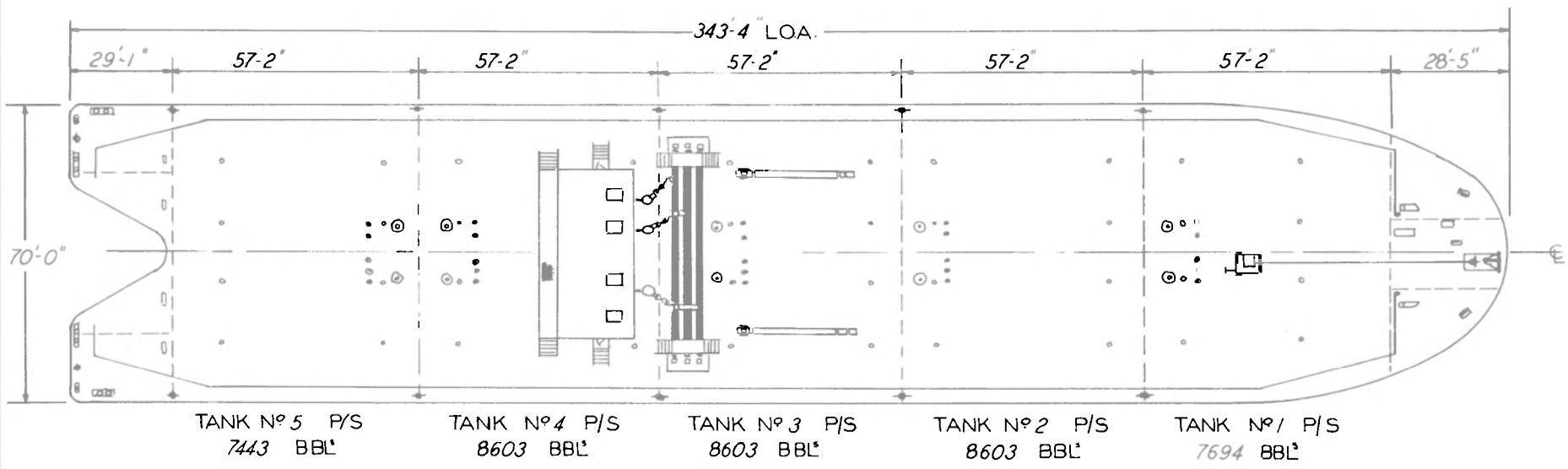
Division of Hudson Engineering Company
1114 Clinton St., Hoboken, N.J. 07030
(201) 659-2600 • (212) 349-0890 • Telex: 12-7373

Write 215 on Reader Service Card

New 80,000 Barrel Barge Available for Oil and Chemical Transportation



OUTBOARD PROFILE



PLAN VIEW - MAIN DK. ARRNG T.

This new barge, McAllister 80, is available for freightment or charter.

- **Suitable for clean petroleum products and chemicals. Tanks fully coated with inorganic zinc.**
- **Capable of loading or discharging 3 cargoes simultaneously.**
- **Able to handle 10 segregations.**

Call John Alban, General Manager, Oil Transportation Division at (212) 269-3200 or any of the McAllister offices listed below.

McALLISTER 80 CHARACTERISTICS

	VESSEL PARTICULARS	
1.	LENGTH, O.A.	343'-4"
2.	BREADTH	70'-0"
3.	DEPTH	24'-7"
4.	LOADLINE DRAFT	20'-7"
5.	DEADWT. @ 20'-7"	9546 L.T.
6.	A.B.S. ✠ A-1 OIL BARGE OFFSHORE	
7.	TOTAL CAPACITY @ 100% FULL	81892 BBL's

	MACHINERY PARTICULARS
1.	ENGINES: (3) GM DIESELS 12V-71
2.	PUMPS: (3) GOULDS 16"x12"-3500 GPM
3.	GENERATOR: (1) G.M. 2-71 W/ 30 K.W. 230/115 VAC. 3 PHASE

McAllister Brothers, Inc. Towing and transportation. 17 Battery Place, **New York, N. Y.** 10004. (212) 269-3200.
Baltimore (301) 547-8678 • **Norfolk** (804) 627-3651
Philadelphia (215) 922-6200 • **San Juan (809) 724-2360**

McAllister

ON THE COVER

Great Lakes Towing Promotes Meltzer To Vice President

Great Lakes Towing Company, Cleveland, Ohio, announced the appointment recently of **William N. Meltzer** as vice president of sales. Mr. **Meltzer,** who formerly served as sales manager for the company, will continue his responsibility for sales services to the ports on the Great Lakes.

Great Lakes Towing Company, founded in 1899, is the oldest and largest towing company on the Lakes, its 44-vessel fleet serving in all Great Lakes ports.

Deliver Ro/Ro Morant Bay To Jamaican Company

Jamaica Merchant Marine Ltd. recently took delivery of the ro/ro vessel Morant Bay, second of 10 sisterships being built under a five-year development plan.

Constructed by A-S Vaagen Verft Shipyard of Norway, the $11.5-million vessel can transport 64 forty-foot trailers or 240 twenty-foot units at a speed of 15 knots.

The vessel is time-chartered by Kirk Lanes Shipping Co. and is sailing weekly on the Miami-Kingston-Grand Cayman route.

Approve Title XI Increase For CATUG Being Built

The Maritime Administration has increased its Title XI loan guarantee commitment on an integrated CATUG tug/barge tanker unit owned by Second Tug/Barge Corp. from $53,782,000 to $62,790,000.

The increase of $10,296,000 was caused by additional construction interest on the vessel between the time of MarAd's initial commitment and the closing date of the guarantee agreement. The guarantee covers approximately 87½ percent of the vessel's $71,761,000 actual cost. The vessel is expected to be delivered in October 1982.

MARITIME REPORTER AND ENGINEERING NEWS

(USPS 016-750)

No. 21 Volume 43

107 EAST 31st STREET
NEW YORK, N. Y. 10016
(212) 689-3266
Telex: MARINTI 424768
ESTABLISHED 1939

Maritime Reporter/Engineering News is published the 1st and 15th of each month by Maritime Activity Reports, Inc. Controlled Circulation postage paid at Waterbury, Connecticut 06701.

Postmaster send notification (Form 3579) regarding undeliverable magazines to Maritime Reporter/Engineering News, 107 East 31st Street, New York, N.Y. 10016.

Member
BPA
Business Publications Audit of Circulation, Inc.

heavy fuel

the advanced

B&W Alpha

S/U28L-V0

diesel propulsion system
1170–3510 kW (1590–4770 bhp) MCR

operates efficiently on fuel up to

1500 sec. R I

with low specific fuel consumption and all the familiar advantages of the B&W Alpha machinery concept. **Ask for details!**

M.A.N.– B&W Diesel

Joint marketing company for Diesel-engines of M.A.N. and B&W Diesel

ALPHA DIESEL, Marine Propulsion Systems 300-3500 kW (400-4800 BHP)
DK-9900 FREDERIKSHAVN, DENMARK · PHONE: + 45 8 42 10 00 · TELEX: 67 115 alpha dk

M·A·N
B&W
DIESEL ENGINES

Agents:

PAT BRENNAN INC.
Post Office Box 403 · 1907 Engineers Road · Belle Chasse, Louisiana 70037 · Phone: 504-392-8945 · Telex: 784 006 brennan

CADENA, INC.
West Loop Business Plaza, 7280 Wynn Wood, Suite 218, Houston, Texas 77008 · Phone: (713) 880-1624 · Telex: 910 881-5005 dantrade hou

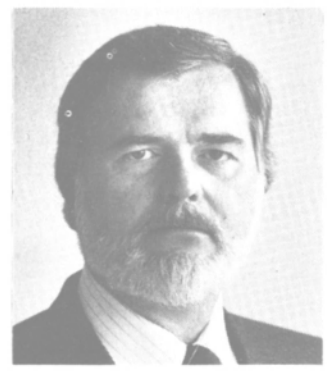
Title XI Approved For $43-Million Conversion Of Four MorMac Ships

The Maritime Administration has approved in principle an application by Moore McCormack Lines, Inc., a subsidiary of Moore McCormack Resources, Inc., Stamford, Conn., for a Title XI guarantee to aid in financing the reconditioning and reconstruction of the Mormacvega, Mormaclynx, Mormacargo and Mormacrigel. The Maritime Subsidy Board previously approved a construction-differential subsidy (CDS) for the project.

All four of the 11,975-dwt Constellation-class vessels were built by Ingalls Shipbuilding Corp., Pascagoula, Miss., and were delivered in 1964 and 1965. They will be lengthened by the inclusion of a new 115-foot cellular midbody section which will have three electro-hydraulic, 40-ton cranes for handling containers. The number 3 hatch will be converted for containers in cells and provision will be made to carry containers four high at both and number 5 and 6 hatches.

The Title XI guarantee covers $32,516,000 ($8,129,000 per ship) or approximately 75 percent of the estimated actual cost (net of CDS) of $43,359,188 ($10,839,797 per ship). American Shipbuilding Co., Lorain, Ohio, is expected to do the reconstruction work. All four vessels are scheduled to be delivered by December 1982.

Appoint Daniel Rogers Marketing Manager At Zidell's Marine Division



Daniel R. Rogers

Daniel R. Rogers has been appointed marketing manager for the marine division of Zidell Explorations, Inc., Portland, Ore.

Thomas A. Sherwood, division manager, said Mr. **Rogers** brings to the newly created position more than 24 years of experience in the marine industry, primarily in sales and contract management.

Prior to joining Zidell, Mr. **Rogers** was contracts manager for FMC Corporation's Marine and Rail Equipment Division, also located in Portland.

In his new position, Mr. **Rogers** will be responsible for new vessel sales and leasing, servicing of current contracts and coordination of ship repair activities.

Zidell is a long-established marine repair and construction company located on the Willamette River. It builds barges of all types for sale or lease, and operates extensive repair facilities for ships and barges in two drydocks and large-scale ship fitting areas. Zidell Marine Corporation, Tacoma, Wash., is a member of the Zidell family of companies.

Color Brochures Describe Riverway Shipyard Facilities And Products

A package of full-color brochures and data sheets is available at no cost from Riverway Shipyard Co. of Grafton, Ill. The booklets contain a complete description of all services available at Riverway and marine equipment manufactured by the yard. Full-color pictures and text cover new construction of towboats, deck barges, tank barges, work flats, drydocks, ferry barges, and rigging barges. A 24-hour repair service for towboats and barges is pictured and described. Another brochure covers deck fittings manufactured by Riverway including barge covers, latching devices, lifting rings and locking pin boxes.

A schedule of rates for marine repair is included, along with a series of pictures of vessels and drydocks produced at Riverway.

For a free Riverway brochure package,

Write 25 on Reader Service Card

Trinidad Corp. Awards Contract To MTA For Steering Modifications

Marine Technical Associates (MTA) of Little Falls, N.J., recently announced that the Trinidad Corporation has awarded them a contract to survey, recommend, engineer and provide hardware for steering modifications necessary to meet the new U.S. Coast Guard regulations and IMCO recommendations.

For complete information on MTA's line of equipment and services,

Write 56 on Reader Service Card

Joint Venture Formed By Tampa Barge Services And ADG Marine Coatings

Tampa Barge Services of Tampa, Fla., and ADG Marine Coatings, also of Tampa, have announced the formation of a joint venture to better serve the maritime industry in the field of tank blasting and coating.

Astilleros Del Golfo Marine Coatings has had long experience in this most exacting process at their installation in Tampico, Mexico, and now with the cooperation of Tampa Barge Services, ADG is ready to continue its fine work in an area where the weather is the best friend of the blaster and coater, namely Tampa.

Product Brochure Published By Patent Scaffolding Co.

An eight-page, full-color brochure was published recently by Patent Scaffolding Co., Fort Lee, N.J., a division of Harsco Corp. It describes and illustrates the types of scaffolding, shoring, forming, and other related construction equipment the company provides.

A list of the network of 30 branch companies in the U.S., Canada, Puerto Rico, Mexico, and Saudi Arabia are also included. The folder describes the specifications and applications of stationary shoring systems, flying shoring systems, interform® aluminum wall forming system, and modular panel formwork system.

For a free copy of the brochure,

Write 40 on Reader Service Card

NSL Expands Container Capacity Of Ro/Ro Ships

Newfoundland Steamships Limited (NSL) recently announced that its ro/ro containerships Cabot and Chimo are being modified to accommodate a total of 100 TEUs (20-foot equivalent units) each of container space on their twice-weekly sailings to St. John's and Corner Brook, Newfoundland.

The Chimo, which presently accommodates 60 TEUs, is being increased to 100 TEUs through the addition of 18 20-foot container slots below deck and 22 spaces on deck. The Cabot, which previously carried 80 TEUs has already been modified with the addition of 20 more 20-foot spaces on deck. Production at both NSL terminals at Montreal, Canada, and St. John's has recently been improved through the purchase of two shore cranes of a new high-production design ordered from American Hoist. These cranes were acquired at a cost of $1 million each and went into operation this summer.

Elect Gardner Chairman Of Jacksonville Port Authority

C. Randal Gardner, business manager for Plumbers and Steamfitters Local 234, was recently elected chairman of the Jacksonville, Fla., Port Authority by the seven-member governing body. He succeeds **C. Herman Terry,** whose term expired on September 30.

Mr. **Gardner** has been a board member since 1974, when he was appointed by then Governor **Reubin Askew**. Four JPA board members are appointed to renewable four-year terms by the Governor, and three by the Mayor of Jacksonville. The members serve without pay. The JPA owns and operates two deepwater marine terminals and three airports in Jacksonville.

Nav-Com Moves To New Facility

Effective November 1, 1981, Nav-Com Incorporated, a marine electronics system company, has begun operations from its new headquarters in Deer Park, N.Y., according to the company's executive vice president **Jack Provenzano**.

The new building provides a substantial increase in space and improved facilities, thus allowing Nav-Com to keep pace with the rapid growth of its customers' requirements. To assure a smooth transition, telephone and telex number remain unchanged.

Nav-Com's new, larger headquarters building in Deer Park, N.Y.

Nav-Com Incorporated specializes in the sales, installation, and service support of electronic communication and navigation equipment on ships with particular emphasis on customized systems. The new facility will house the administration, marketing, engineering, service, and production departments. In addition, training and support facilities will be available for Magnavox Satellite Communications and Navigation products, Harris HF/ARQ systems, and Kockumation Loadmaster and Levelgauging systems.

For further information, contact Nav-Com Incorporated at 9 Brandywine Drive, Deer Park, N.Y. 11729, telephone (516) 667-7710, Telex 645744 NAVCOM NY DEER.

Issue Call For Papers For SNAME Ship Costs & Energy Symposium

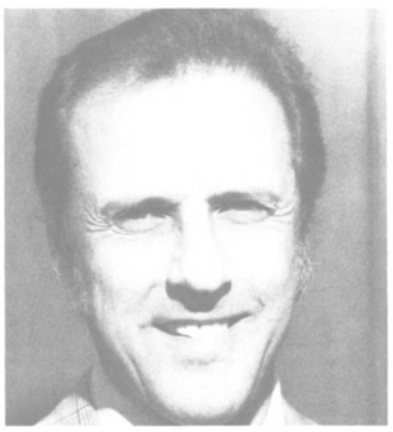
The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers has issued a call for papers for a symposium on ship costs and shipboard energy that the section will conduct in conjunction with T&R Panel 0-36 — Economic Analysis of Marine Transportation. The symposium will be held September 30 and October 1, 1982, at the Waldorf-Astoria Hotel in New York City.

According to **Richard J. Baumler** and **David A. O'Neil,** symposium cochairmen, the ship cost portion of the symposium will be concerned with shipbuilding and operating costs and the energy portion will concentrate on the technical aspects, with or without detailed financial ramifications.

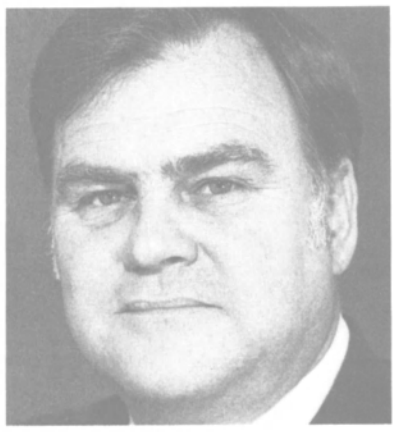
Deadline for submission of abstracts is November 15, 1981, and January 15, 1982 is the date for notification of acceptance. Late submittals from overseas will be considered beyond November 15, noted **Neil Reddy,** chairman of the SNAME Metropolitan Section. Abstracts are to be sent to **Alexander C. Landsburg,** 307 Williamsburg Drive, Silver Springs, Md. 20901.

Typical subject areas for ship costs include shipbuilding cost estimates, ship operating costs, and U.S. versus foreign costs and subsidies. Typical energy topics would include resistance and propulsion techniques, fuels, and coal-fired boilers. Subjects such as computer aids, and approaches and techniques from other industries would be applicable to both areas.

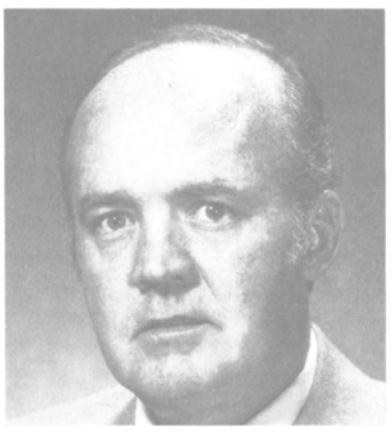
"Let us keep your ships in shape. We can and will."



Milt Leubecker,
Gen. Mgr.,
Baltimore Yard



Dick Blackinton,
Gen. Mgr.,
Hoboken Yard



Ray DeVinney,
Gen. Mgr.,
Boston Yard

Sherm Perry,
Gen. Mgr.,
Beaumont Yard

Gayne Marriner,
Gen. Mgr.,
San Francisco Yard

All our skills, backed by lifetimes of experience and yardsful of facilities, tools, and talent, are at your service. Phone, wire, or write directly to our sales office in New York City, or to one of the 27 agents who represent us in maritime countries around the free world.

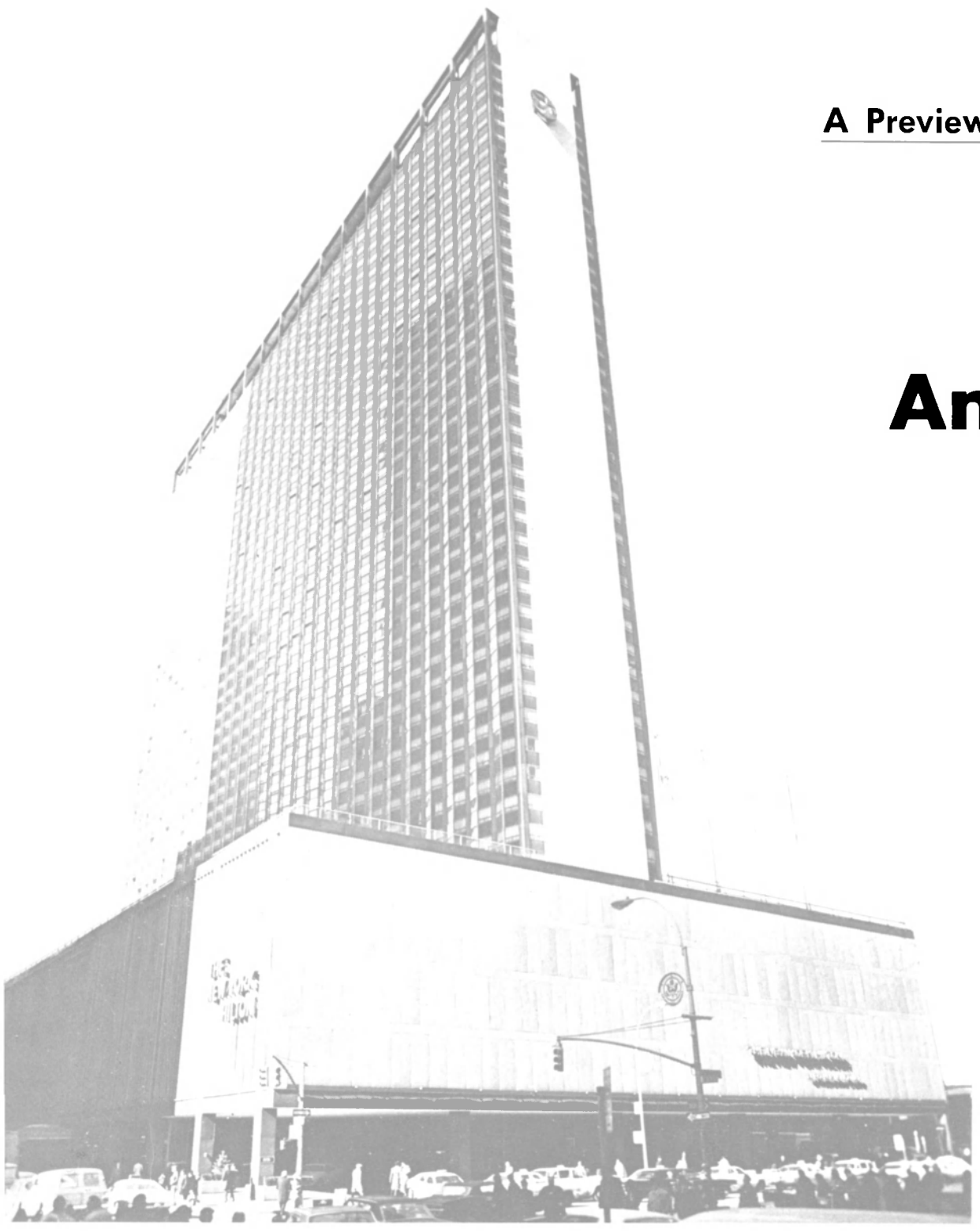
The Docks of Bethlehem

Baltimore Harbor 5 docks to 44,000 tons
New York Harbor 4 docks to 26,000 tons, plus 1 dock, 1,092 x 140 ft
Boston Harbor 3 docks to 18,500 tons
Beaumont, Texas 1 dock of 17,500 tons
San Francisco Harbor 2 docks to 65,000 tons

BethShip BETHLEHEM STEEL

Bethlehem Steel Corporation,
Shipbuilding Department

Ship Repair Sales: One State St. Plaza, New York, NY 10004, Cables: BETHSHIP New York • Telex: 222-847 • Phone: (212) 558-9500



A Preview Of The

89th SNAME Annual Meeting

The 89th Annual Meeting of The Society of Naval Architects and Marine Engineers will convene at The New York Hilton Hotel, New York, N.Y. on November 19-21, 1981. "This is by far the Society's largest annual event," stated **John J. Nachtsheim,** president of the Society, "with more than 1,000 people from all segments of the maritime industry gathering to hear the technical presentations."

At the simultaneous technical sessions on November 19 and 20, 14 papers will be presented with subjects of enough variety to interest all the attendees.

President **Nachtsheim** will give his annual address at the President's Luncheon in the Grand Ballroom on Thursday, November 19. Featured on the program will be the presentation of several important awards. Later that afternoon, at 4:00 pm, the annual Business Session will be held, where the members will act on proposed amendments to the Society's By-laws and other business that may come before the meeting.

On Friday evening, November 20, the Annual Banquet will take place in the Grand Ballroom with Mr. **Nachtsheim** presiding. This is the most traditional part of the Annual Meeting, where the Society's highest awards are presented. The banquet speaker will be the Hon. **John F. Lehman Jr.,** Secretary of the Navy.

The David W. Taylor Medal "for notable achievement in naval architecture and marine engineering" will be awarded to **Erwin Carl Rohde,** manager, Operation Planning and Technical Resources, Industrial and Marine Turbine Division of the General Electric Company, Lynn, Mass. The Vice Admiral "Jerry" Land Medal "for outstanding accomplishment in the marine field" will be given to **Ellsworth Peterson,** president, general manager

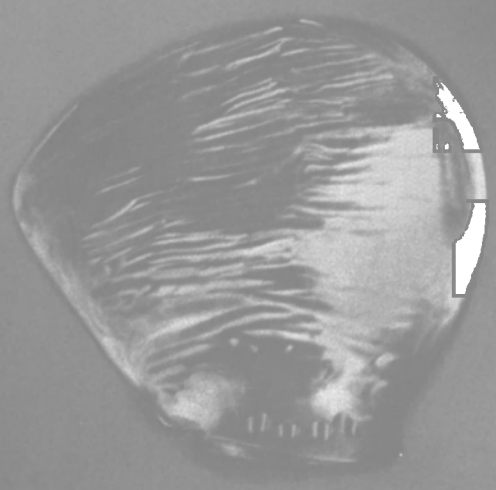
(continued on page 12)

TECHNICAL MEETING SCHEDULE

Time	THURSDAY		FRIDAY	
	Trianon Room	Mercury Room	Trianon Room	Mercury Room
9:00	1. Investigation of a new Inland Waterway Shipform	3. Risk and Operability Analysis in the Marine Environment	7. Application of Plastic Analysis to USCG Icebreaker Shell Plating	9. Estimating Technical and Economic Penalties of Roughness
10:30	2. Liquid Bulk Carrier Inert Gas and Ventilation Systems	4. Revival of the Coastal Tanker: Development and Construction	8. Applying a Computer-Aided Ship Structural Design Method	10. Development and Experience of Novel Integrated Duct Propeller
2:00			11. Hull/Machinery Foundation Incompatibility	13. Hydrodynamic Added-Mass Matrix of Vibrating Ship . . .
2:30	5. Major Factors in Frigate Design	6. Dynamic and Hydrodynamics of Surface-Effect Ships		
3:30			12. Coal-Fired Fluidized-Bed Steam Generator for Marine . . .	14. Effects of Hull and Propeller Design Changes . . .
4:00	Business Session			

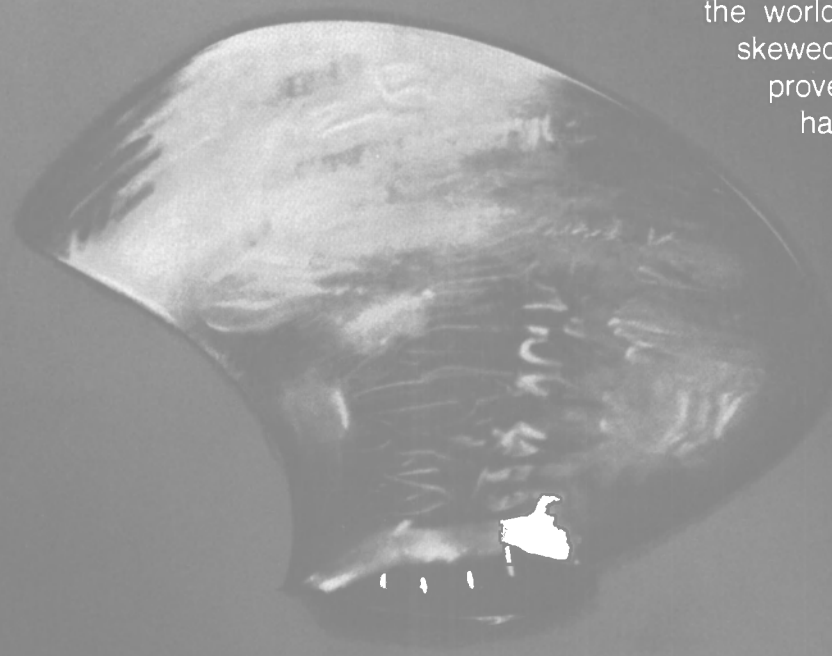
We Have Designs For Your Future

Skewed Propeller Technology

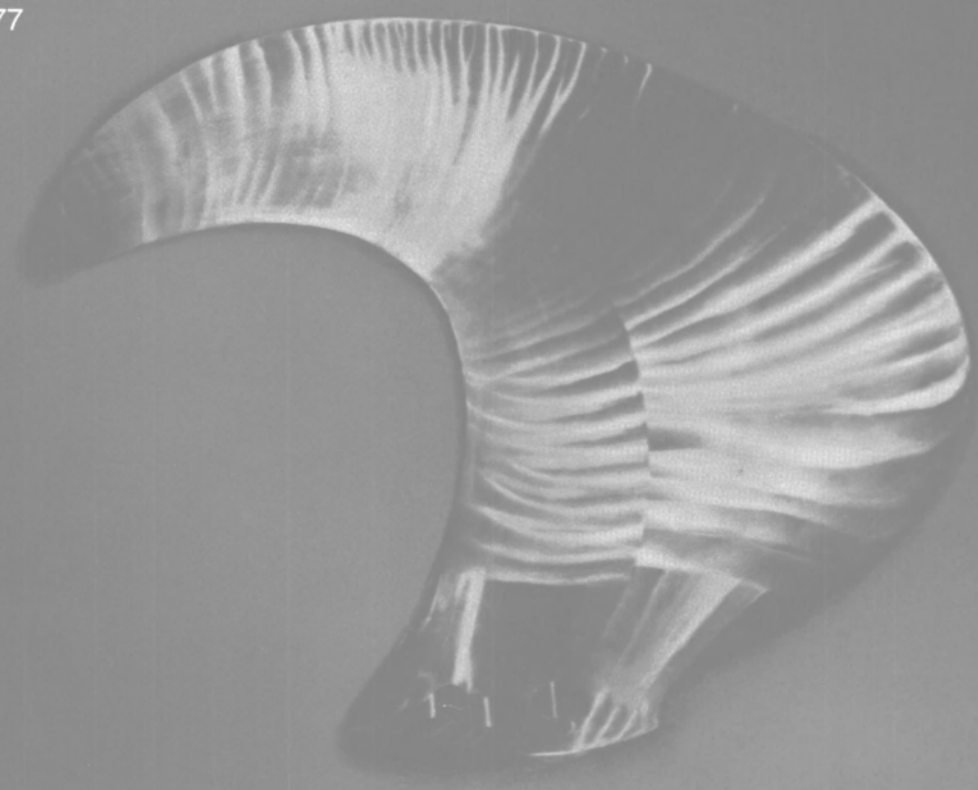


1975

Why compromise economic ship design because of concerns for propeller-induced vibrations? An advanced solution from the world's most experienced manufacturer of highly skewed propeller blades—the techniques used and proven in producing quiet running naval propellers have now been applied to commercial ships. Find out why this technology is uniquely suited to controllable pitch propellers and can contribute to increased fuel economy, simplified control and improved maneuverability for your ship. Write or call Gary W. Dayton for further information.



1977



1981

BIRD-JOHNSON COMPANY MARINE DIVISION
110 Norfolk Street, Walpole, MA 02081, (617) 668-9610

89th SNAME Annual Meeting —A Preview

(continued from page 10)

and treasurer of Peterson Builders, Inc., Sturgeon Bay, Wis.

On Saturday night, the Grand Ballroom will be the setting for the annual Dinner Dance, a fitting conclusion to the Annual Meeting.

Technical Papers

(See table for time and place)

Paper No. 1. "Investigation of a New Inland Waterway Shipform" by **Hsueh Chung-chuan, Wang Zhi-fa, Li Ru-zhen, Tao Mei-fang** and **Cheng Zhen-zhong**.

SYNOPSIS — The authors describe a new shipform having a flat bow and cochlea-channeled stern, which is a development and skillful combination of a "flat bow" form of ancient China and a "cochlea-channeled stern" form developed by **Giovanni B. Tommasi** in the 1970s. Results from comparative tests on the ship models are presented. The influence of the bow and stern on the ship performance is discussed; the abnormal phenomena observed are analyzed, and theoretical inferences are made. Also treated is the first full-scale ship's trial trip.

Paper No. 2. "Design and Operational Considerations for Liquid Bulk Carrier Inert Gas and Ventilation Systems to Provide Safe Tank Gas Concentrations" by **Robert L. Bass III, Thomas B. Morrow** and **Raymond J. Magott**.

SYNOPSIS — This paper gives the results of a study of inert gas take-off designs and ship tank gas exchange methodology. Scale model tests of shipboard uptakes to assess the effect of take-off location and the ratio of inert gas to flue gas flowrate on inert gas quality are presented. Also included are tank gas exchange tests performed at sea onboard a 390,000-dwt crude oil carrier.

Paper No. 3. "Risk and Operability Analysis in the Marine Environment" by **Bruce L. Hutchison**.

SYNOPSIS—A method is presented for developing the probability distribution for failure and operability functions. The technique discussed can be applied to systems operating in spatially- and time-varying wave climatologies, and subject to the favorable influence of seamanship actions. The paper discusses motivation and applications, traces the development of concepts, outlines detailed procedures and concludes with actual examples.

Paper No. 4. "Revival of the Coastal Tanker: Development and Construction of a U.S.-Flag 2,500-dwt Product Carrier" by **Joseph D. Mazzei** and **Rudolph G. Terry**.

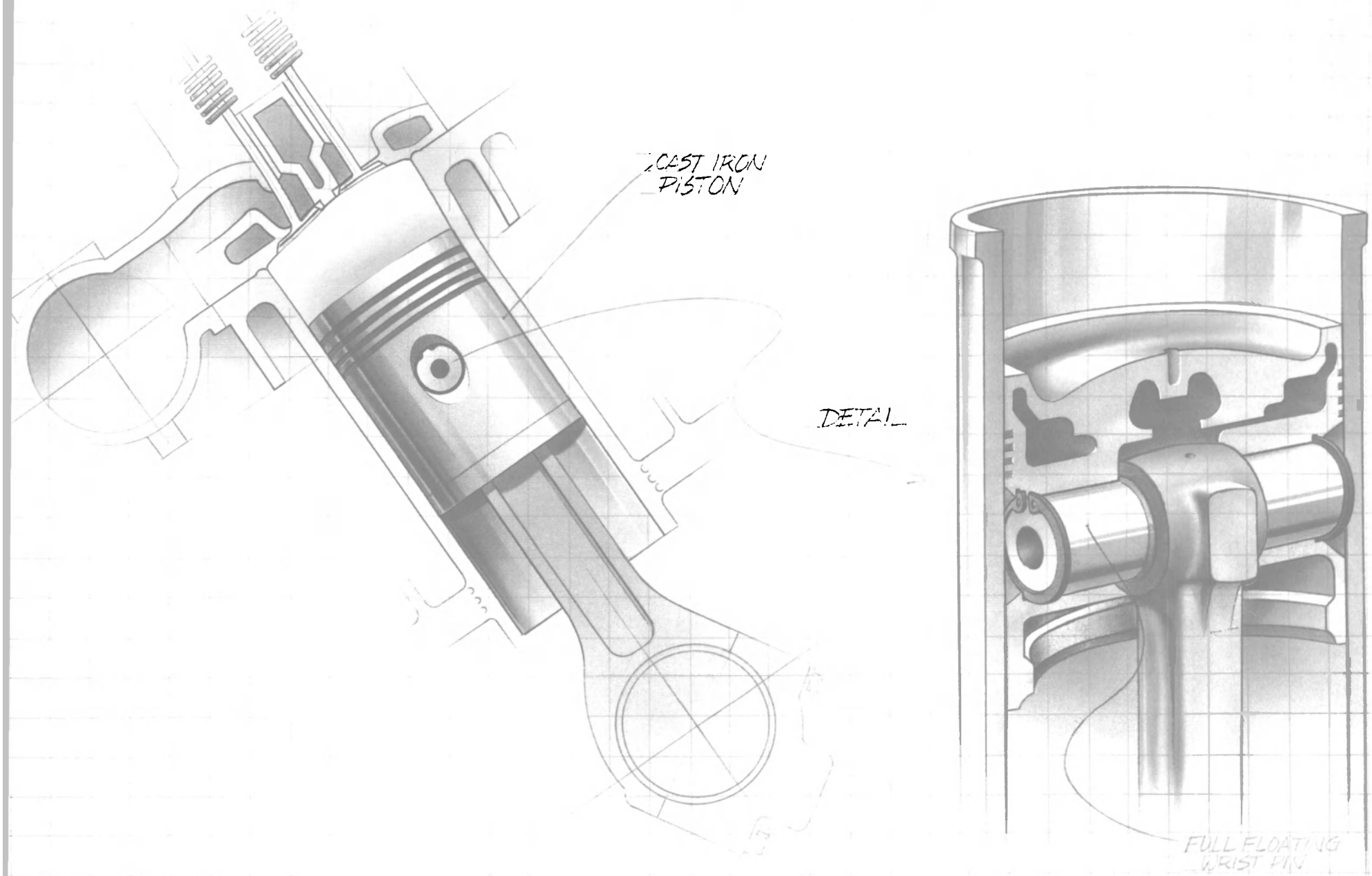
SYNOPSIS — The Northern Sun, a 2,500-dwt coastal tanker, was constructed in a conscious departure from tug and tank-barge operation. Operating experience with both small harbor tankers and tug/barge fleets, together with recognition of modern technology and reduced manning potential on ships, formed the basis for a decision to rethink vessel acquisition for waterborne intercoastal petroleum products distribution.

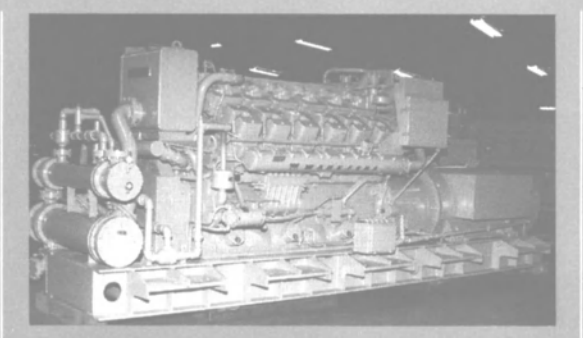
Paper No. 5. "Major Factors in Frigate Design" by **William H. Garzke Jr.** and **George Kerr**.

SYNOPSIS—This paper identifies the major factors in frigate design and offers several designs as examples of how these affect a ship's size, cost and performance. Some of the major determinants of frigate size and cost discussed in this paper include: choice of propulsion plant; maximum sustained speed, cruising

(continued on page 15)

Waukesha dependability is simply a matter of detail.





Waukesha VHP marine diesel engines feature cast iron pistons. For good reason. Dependability. A cast iron piston has the strength to withstand peak combustion pressures encountered during heavy-duty operation. Cast iron's strength allows thinner piston walls, so there can be channels inside the piston for improved cooling. And since a cast iron piston is made of the same material as the cylinder liners, it has the same coefficient of expansion.

Waukesha's closer and more constant piston-to-liner clearance means easier starting when the engine's cold. Yet without the danger of seizing-up under high heat, heavy load conditions. Blow-by is minimized, and there's less chance of piston slap.

Overall, cast iron pistons reduce the chance of major engine breakdown.

Waukesha cast iron pistons are connected to forged connecting rods by full floating wrist pins. Wear is more evenly distributed and extended than with semi-floating or stationary pins.

Metallurgical detail is only one example of how Waukesha engineers dependability into marine diesels.

See your Waukesha distributor for the full story on Waukesha marine engines or engine generator ship service systems.

Waukesha DRESSER

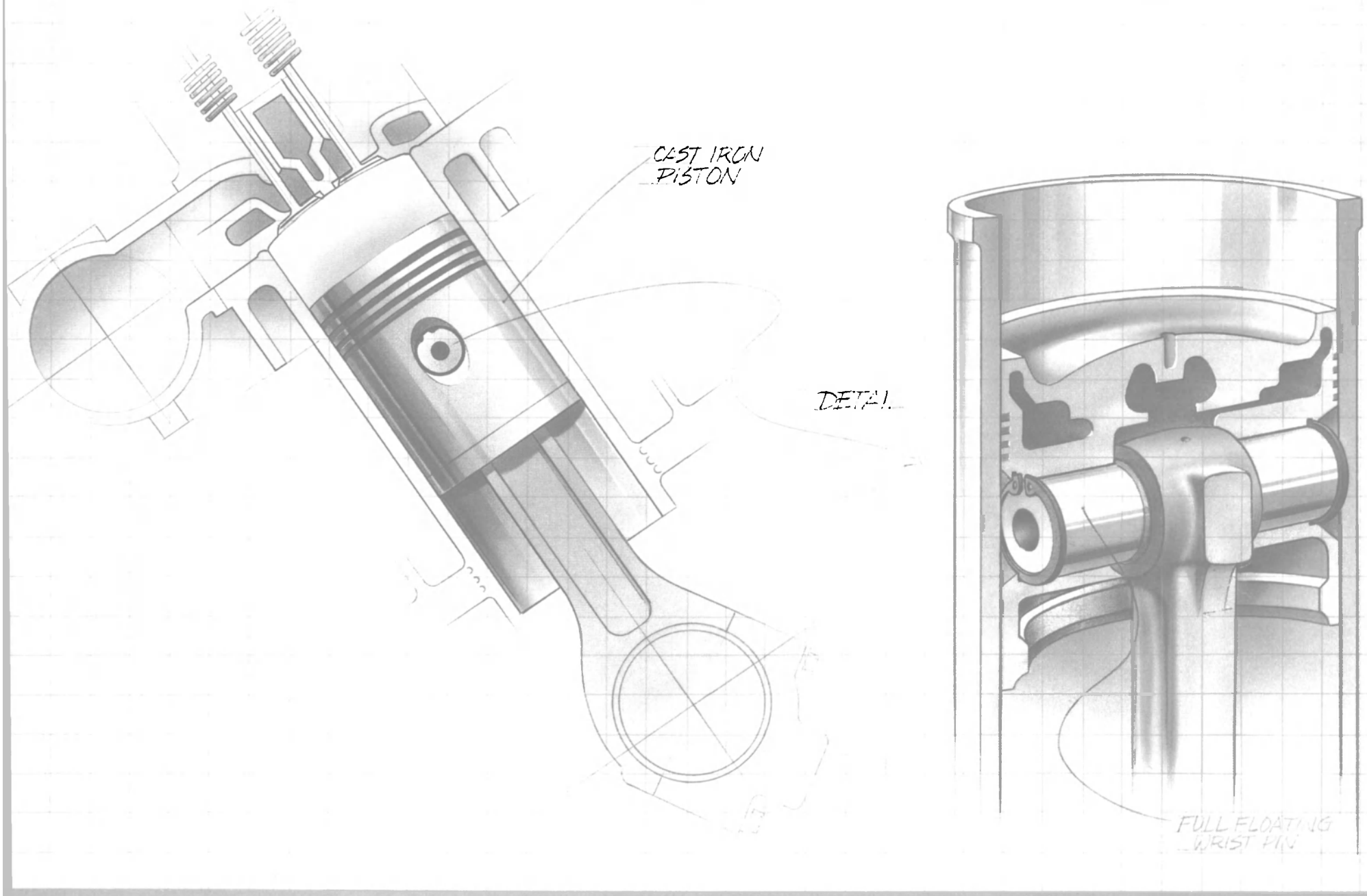
WAUKESHA ENGINE DIVISION
DRESSER INDUSTRIES INC.
WAUKESHA, WISCONSIN 53187

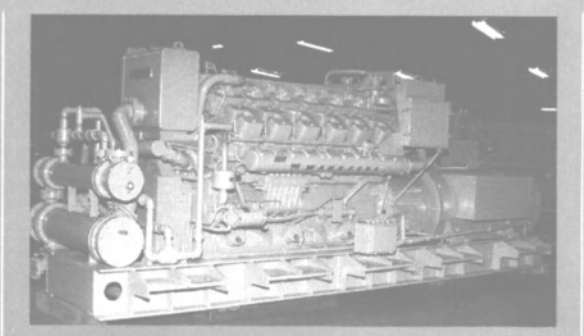
Write 373 on Reader Service Card

...has been

Foundation Incompatibility" by requirements and the structural for Marine Application" by J.T.

Waukesha dependability is simply a matter of detail.





Waukesha VHP marine diesel engines feature cast iron pistons. For good reason. Dependability. A cast iron piston has the strength to withstand peak combustion pressures encountered during heavy-duty operation. Cast iron's strength allows thinner piston walls, so there can be channels inside the piston for improved cooling. And since a cast iron piston is made of the same material as the cylinder liners, it has the same coefficient of expansion.

Waukesha's closer and more constant piston-to-liner clearance means easier starting when the engine's cold. Yet without the danger of seizing-up under high heat, heavy load conditions. Blow-by is minimized, and there's less chance of piston slap.

Overall, cast iron pistons reduce the chance of major engine breakdown.

Waukesha cast iron pistons are connected to forged connecting rods by full floating wrist pins. Wear is more evenly distributed and extended than with semi-floating or stationary pins.

Metallurgical detail is only one example of how Waukesha engineers dependability into marine diesels.

See your Waukesha distributor for the full story on Waukesha marine engines or engine generator ship service systems.

Waukesha DRESSER

WAUKESHA ENGINE DIVISION
DRESSER INDUSTRIES INC.
WAUKESHA, WISCONSIN 53187

Write 373 on Reader Service Card

When your ship needs service every port is a major port to BP Marine International.

Brooks Range,
Interocean Management Corp.

More than 4000 ships receive BP's high quality lubrication services at 300 ports in over 60 countries.

BP North America Trading Inc.
New York
New Jersey
New Orleans
Houston
Los Angeles

Telephone 201 494 3900

BP marine international. Serving America and the World.

89th SNAME Annual Meeting —A Preview

(continued from page 12)

speed and endurance; type and number of helicopters carried, and choice of weapons system and their associated electronics. Effects of these and other "major drivers" are illustrated by using variants of FFG 7.

Paper No. 6. "Dynamics and Hydrodynamics of Surface-Effect Ships" by **Paul Kaplan, James Bentson** and **Sydney Davis**.

SYNOPSIS — A description is given of the importance of dynamics problems and their influence on performance and design of surface-effect ships (SES). Problems of scaling model motions, as well as relations between analysis and test data, are described for seakeeping, maneuverability and control requirements for this class of ship. Correlation between theory and experiment is provided as the basis of using computer simulation predictions for full-scale design of large SES craft.

Paper No. 7. "Application of Plastic Analysis to U.S. Coast Guard Icebreaker Shell Plating" by **Richard Chiu, Eugene Haciski** and **Paul Hirsimaki**.

SYNOPSIS—This paper applies plastic analysis to icebreaker shell plating by two methods: idealized three-hinge plastic analysis, and non-linear finite element study. Past U.S. Coast Guard icebreaker structural design practice is reviewed and damage histories are discussed. Based on the two approaches to plasticity, a design method relating permanent set-in-steel icebelt plating to panel loading is presented.

Paper No. 8. "Application of a Computer-Aided, Optimal Preliminary Ship Structural Design Method" by **Donald Liu, Owen Hughes** and **John Mahowald**.

SYNOPSIS—The authors present the capabilities of the SHIPOPT computer program for use in assessing overall structural adequacy and/or developing preliminary ship structural designs, which are optimal in terms of a user specified objective such as least initial cost. The general program philosophy is discussed and two design examples are given: a segregated ballast tanker, and a double-bottom bulk carrier.

Paper No. 9. "Estimating the Technical and Economic Penalties of Hull and Propeller Roughness" by **Robert L. Townsin, David Byrne, Tor E. Svensen** and **Alex Milne**.

SYNOPSIS — The monitored speed-power performance of two containerships are interpreted in terms of their roughness histories. Hull surface damage penalties and texture parameters are discussed, a code of practice for hull surface measurements and presentation is offered. Propeller roughness measurements are provided with the calculation of drag increase effects. A techno-economic model of the containerships provides economic comparisons between various bottom maintenance schemes.

Paper No. 10. "Development and Full-Scale Experiences of a Novel Integrated Duct Propeller" by **H. Narita, H. Yagi, H.D. Johnson** and **L.R. Breves**.

SYNOPSIS—A new propulsion system, the Mitsui Integrated Duct Propeller (MIDP), has been developed for reducing fuel consumption. The MIDP utilizes a duct mounted forward of the propeller. The MIDP hydrodynamic features and trial results of the 250,000-dwt tanker Esso Copenhagen with and without MIDP are described in this paper. Also

(continued on page 16)

89th SNAME Annual Meeting —A Preview

(continued from page 15)

included are voyage data analysis of other MIDP's.

Paper No. 11. "Hull/Machinery Foundation Incompatibility" by **William I.H. Budd, Shashank V. Karve, Donald Liu, Joao G. de Oliveira** and **Paul C. Xirouchakis.**

SYNOPSIS—The authors deal with the problem of compatibility between hull deflections and distortion limits inposed by the operational requirements of the main propulsion machinery components. They evaluate the relationship between manufacturer's requirements and the structural design of machinery foundations. Presented are a set of recommendations capable of helping the designer meet the requirements of foundation stiffness. Also included are suggested methods and techniques of structural analysis and design to assist the designer.

Paper No. 12. "A Coal-Fired Fluidized-Bed Steam Generator for Marine Application" by **J.T. Schroppe** and **R.L. Gamble.**

SYNOPSIS — The fluidized-bed combustion process is described and its application to steam generators is shown through the description of demonstration projects. A preliminary design for a marine coal-fired fluidized-bed steam generator and the associated system arrangement is shown and described. The system presented can provide for efficient coal-fired propulsion while meeting expected emissions control requirements.

Paper No. 13. "Hydrodynamic Added-Mass Matrix of Vibrating Ship Based on a Distribution of Hull Surface Sources" by **William S. Vorus** and **Schelte Hylarides.**

SYNOPSIS — This paper presents a matrix formulation for ship vibratory added-mass based on the source distribution method. For example, the method is applied to a Series 60 hull. The added-mass matrix developed is used in a comparison with the Lewis J-Factor method for one-dimension ship vibration.

Paper No. 14. "Effects of Hull and Propeller Design Changes on the Vibration of a Lakes Freighter" by **F. Everett Reed, Noel L. Bassett** and **John A. Norton.**

SYNOPSIS—This paper reports on actions to reduce the vibration on the Charles E. Wilson. A flow-control tunnel was fitted on the original ship. Later, highly skewed blades were fitted to the original controllable-pitch propeller hub. Vibration levels associated with each change, and model, full scale and calculated hull pressures in the flow-control tunnel are reported.

SNAME To Sponsor First Exhibition In 1982

SNAME has something different in store for the 1982 annual meeting—the organization's 90th.

The society will sponsor an "International Maritime Exposition" to be held in conjunction with the highly acclaimed technical program. It is the first time the prestigious society has opened its doors to exhibitors.

The exhibition will be held at the same site as the annual meeting—the New York Hilton Hotel, on November 17 through 19, 1982. For more information on exhibit space for marine product manufacturers, suppliers, and service firms,

Write 90 on Reader Service Card

Moran's 19,000 dwt barge *Caribbean* loading coal in Baltimore for transport to Searsport, Maine.

The Energy to Move Energy

Moving coal takes energy. Moran has both the energy and the know-how to move it efficiently! Over 120 years of experience go into the operation of our cost-saving, coastwise tug and coal barge units.

Make your coal move with Moran. Call or write us to discuss your needs.

Moran Towing Corporation
One World Trade Center • Suite 5335 • New York, NY 10048
Tel. 212-466-3600 • TWX 710-581-2329

Capt. Cunningham Named Financial Manager At USCG Yard, Curtis Bay

David Cunningham

Capt. **David Cunningham** recently reported to the Coast Guard yard in Curtis Bay, Md. He will serve as the yard's manager of financial operations, a position which oversees the shipyard's fiscal, supply and procurement activities, as well as the ships' inventory control point. The latter is an operation which provides supply service to the Coast Guard fleet worldwide.

The captain comes to the yard from the 13th Coast Guard District, Seattle, Wash., where he served as the commanding officer of the cutter Campbell. Previous sea duty included service aboard the cutters Castle Rock, Cape Horn, Alert and Sherman.

Captain **Cunningham's** shore unit assignments covered positions such as commanding officer of the Coast Guard's Loran station, Guam, supply officer and comptroller of the 9th Coast Guard District, Cleveland, Ohio, and data processing and procurement positions at Coast Guard headquarters.

$3.8-Million Navy Drydock Contract Awarded To Two Engineering Firms

Century Engineers and Piedmont Engineers, a joint venture of Towson, Md., have been awarded a $3,822,285 fixed price contract for architect/engineering services in the design of a drydock at the Naval Submarine Support Base, Kings Bay, Kingsland, Ga. Work will be performed in Towson, Md., and Greenville, S.C. The Naval Facilities Engineering Command, TRIDENT, is the contracting activity. (N68-248-81-C-0119)

Dedicate Computerized Management System For Port Terminals

A Marine Terminal Automated Management System (MTAMS), financed in part by the Maritime Administration, was dedicated recently by MarAd's western region director, **Thomas J. Patterson,** at the Seventh Street Public Container Terminal, Port of Oakland, Calif.

The MTAMS is part of a MarAd program to encourage the use of automated information and control systems at U.S. public, multi-user marine terminals. The system speeds the collection and dissemination of information and thereby expedites the flow of containerized cargo and equipment through a terminal.

ARINC Research of Annapolis, Md., in cooperation with the staff of the Marine Terminals Corp., designed the system for the Oakland facility. MarAd's share of the $925,000 project amounted to approximately $325,000. The Federal agency developed the computer application software and documentation, including a cost-benefit analysis. The Port of Oakland and Marine Terminals Corp., the facility's manager, spent $600,000 for the acquisition of the computer hardware and site preparation activities associated with the installation of the system.

A report on the project, "Marine Terminal Automated Management Control System for Public Marine Terminals, Phase I & II," will be published for distribution through the National Technical Information Service.

The application software and documentation developed by ARINC Research under contract to MarAd will be made available exclusively to the U.S. port industry, with adaptation costs borne by the user.

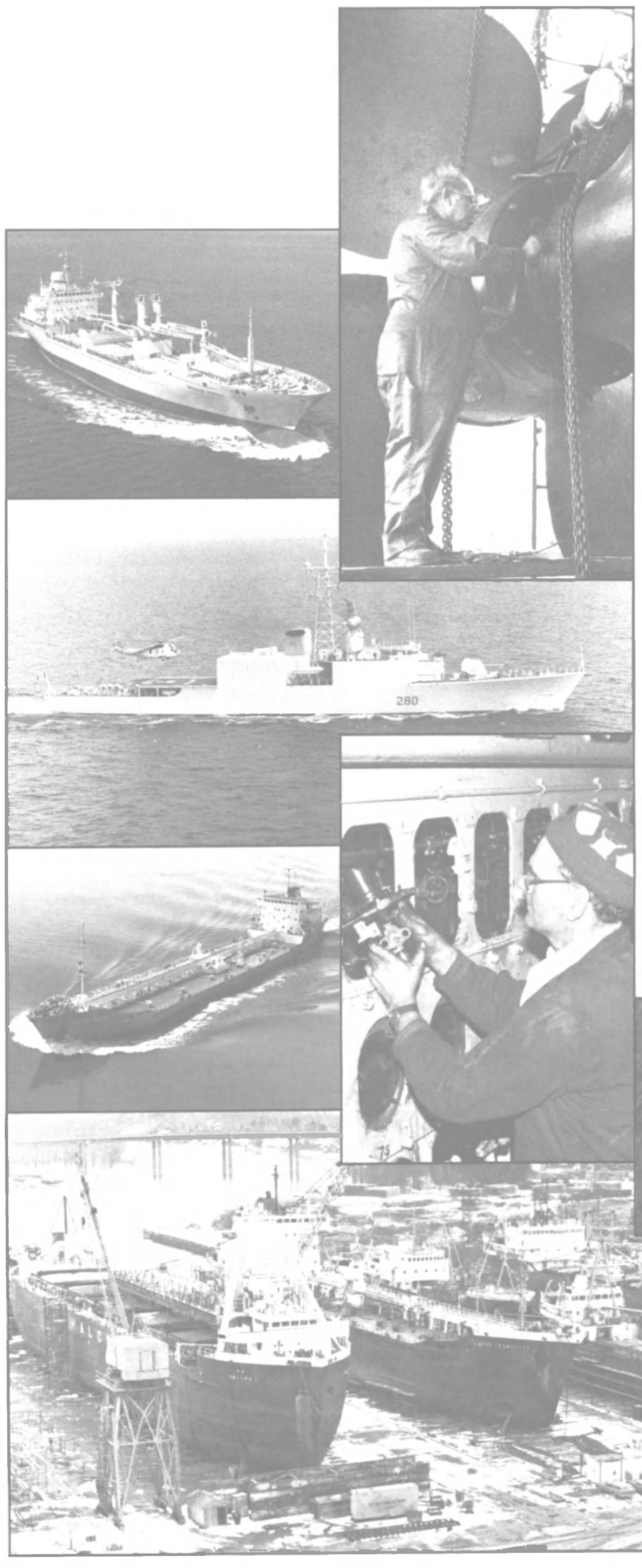
Moran's 19,000 dwt barge *Caribbean* loading coal in Baltimore for transport to Searsport, Maine.

The Energy to Move Energy

Moving coal takes energy. Moran has both the energy and the know-how to move it efficiently! Over 120 years of experience go into the operation of our cost-saving, coastwise tug and coal barge units.

Make your coal move with Moran. Call or write us to discuss your needs.

Moran Towing Corporation
One World Trade Center • Suite 5335 • New York, NY 10048
Tel. 212-466-3600 • TWX 710-581-2329



We Build... We Repair

Ferry boats, trawlers, icebreakers, coastal tankers, naval vessels, cargo ships: we have built hundreds of them — and repaired nearly as many.

You can depend on MIL ships... And you can depend on MIL repair work. Our two marine railways permit dry-docking up to nine ships at a time, while voyage and damage repairs, refits, conversions and surveys on all of them proceed uninterrupted all year-round.

We know shipbuilding.
And we know ship repairs.
Our experience is at your service.

MARINE INDUSTRIE LIMITEE
P.O. Box 550, Sorel, Québec. J3P 5P5, Canada
Tel.: (514) 743-3351 Telex: 055-61081.

McAllister Brothers Is New Name For Baker-Whiteley Towing

The name of the Baker-Whiteley Towing Company, which has been synonymous with the Port of Baltimore since 1878, was changed recently to that of its owners, McAllister Brothers, Inc.

Another change will be the painting of their fleet to correspond with the well-known colors and stack insignia of the McAllister fleets in the other ports of the world where they operate.

Since acquiring the Baker-Whiteley organization, McAllister has added two tugs to the Baltimore fleet, one of which is the 3,000-hp Grace McAllister. These additions have increased the company's ability to handle the largest ships calling at the Port of Baltimore.

Capt. **Thomas J. Murphy Jr.**, president of the Baker-Whiteley Towing Company, will continue to be in charge of the Baltimore office as a vice president of McAllister Brothers, Inc.

Roof To Sales Manager At Paducah Marine Ways

Louis Roof

Paducah Marine Ways has announced the promotion of **Louis Roof** to manager of sales, according to **James Causey**, general manager of the facility. Mr. **Roof** will develop additional repair business, direct customer relations, including assisting in resolution of customer concerns, and coordinate the billing process.

Mr. **Roof**, a 26-year employee of Paducah Marine Ways, has worked in virtually every department, most recently serving as repair manager.

Tracor Publishes Paper On Navigation System —Copies Available

Tracor Omega navigation systems are proving themselves on more than 2,000 vessels worldwide. A new paper is offered by Tracor Instruments, Austin, Texas, describing the applications and unique advantages Omega offers to the big ship navigator, fisherman, and pleasure boat cruiser or sailor.

Entitled "Tracor Omega — A Success Story," the paper provides excellent insights on the value of Omega.

For a free copy,

Write 38 on Reader Service Card

IMM To Install New GE Turbine Package At Offshore Installation

International Moorings & Marine, Inc. of New Iberia, La., has been awarded a contract by Michigan Wisconsin Pipeline Company for an addition to its offshore compressor station at Eugene Island Block 188-B.

The project involves the installation of a new 25,000-horsepower General Electric Turbine package. IMM will utilize two of its jackup boats as work platforms and living accommodations for approximately 65 workmen as well as its 130-foot construction support vessel. Transporting and setting the 450-ton compressor package onto the platform will be done by Heerema Group, U.S.A. under subcontract to IMM. Fabrication of interconnecting piping and associated material has been completed at IMM's Fabrication Yard located at the Port of Iberia.

Charles Mann, chairman of the board of directors of International Moorings & Marine, Inc., stated that this project is indicative of the total service offered by IMM, which includes onshore fabrication, offshore installation, and logistical support.

Capt. Cunningham Named Financial Manager At USCG Yard, Curtis Bay

David Cunningham

Capt. **David Cunningham** recently reported to the Coast Guard yard in Curtis Bay, Md. He will serve as the yard's manager of financial operations, a position which oversees the shipyard's fiscal, supply and procurement activities, as well as the ships' inventory control point. The latter is an operation which provides supply service to the Coast Guard fleet worldwide.

The captain comes to the yard from the 13th Coast Guard District, Seattle, Wash., where he served as the commanding officer of the cutter Campbell. Previous sea duty included service aboard the cutters Castle Rock, Cape Horn, Alert and Sherman.

Captain **Cunningham's** shore unit assignments covered positions such as commanding officer of the Coast Guard's Loran station, Guam, supply officer and comptroller of the 9th Coast Guard District, Cleveland, Ohio, and data processing and procurement positions at Coast Guard headquarters.

$3.8-Million Navy Drydock Contract Awarded To Two Engineering Firms

Century Engineers and Piedmont Engineers, a joint venture of Towson, Md., have been awarded a $3,822,285 fixed price contract for architect/engineering services in the design of a drydock at the Naval Submarine Support Base, Kings Bay, Kingsland, Ga. Work will be performed in Towson, Md., and Greenville, S.C. The Naval Facilities Engineering Command, TRIDENT, is the contracting activity. (N68-248-81-C-0119)

Dedicate Computerized Management System For Port Terminals

A Marine Terminal Automated Management System (MTAMS), financed in part by the Maritime Administration, was dedicated recently by MarAd's western region director, **Thomas J. Patterson**, at the Seventh Street Public Container Terminal, Port of Oakland, Calif.

The MTAMS is part of a MarAd program to encourage the use of automated information and control systems at U.S. public, multi-user marine terminals. The system speeds the collection and dissemination of information and thereby expedites the flow of containerized cargo and equipment through a terminal.

ARINC Research of Annapolis, Md., in cooperation with the staff of the Marine Terminals Corp., designed the system for the Oakland facility. MarAd's share of the $925,000 project amounted to approximately $325,000. The Federal agency developed the computer application software and documentation, including a cost-benefit analysis. The Port of Oakland and Marine Terminals Corp., the facility's manager, spent $600,000 for the acquisition of the computer hardware and site preparation activities associated with the installation of the system.

A report on the project, "Marine Terminal Automated Management Control System for Public Marine Terminals, Phase I & II," will be published for distribution through the National Technical Information Service.

The application software and documentation developed by ARINC Research under contract to MarAd will be made available exclusively to the U.S. port industry, with adaptation costs borne by the user.

Marathon Licensee To Build Third Jackup Rig

Marathon LeTourneau Offshore Company licensee, Euroasia Shipyard Company Limited, Hong Kong, has signed a contract with Construction & Marine Services Company (S.A.K.), Kuwait, for construction of a Class 116-C self-elevating mobile offshore jackup drilling unit. Contract delivery date for the cantilever jackup is the second quarter of 1983.

This contract, Euroasia's third since March 1981, fills the first of the yard's 1983 construction slots. Euroasia has two rig slots still available for that year.

A unique feature of the large rig is an enclosed, air-conditioned drill floor which is expected to greatly increase crew efficiency and productivity in areas with extremely high ambient temperatures. The rig will also have a four-level crew quarters capable of housing more than 90 personnel, outfitted to the specifications of Construction & Marine Services.

Construction & Marine Services Company (S.A.K.) is the leading marine construction company in Kuwait. It operates oil drilling rigs through its subsidiary, Kuwait Drilling Company. In addition, Construction & Marine Services is the leading Kuwait company in the field of dredging reclamation. Euroasia Shipyard Company Limited is a subsidiary of the C.Y. Tung Group, the world's largest independent shipowner.

Reports Available On Coldwelding Repair Process By Velodur

American Velodur Metal, Inc., Scituate, Mass., has published two reports on the applications of its coldwelding repair process. The reports, taken from U.S. Navy and marine industry applications, illustrate how repairs can be made where conventional torch welding is not practical such as repairs to fuel oil tanks and systems, and to saltwater and potable water lines. The process eliminates the need for draining or shutting down systems.

For free copies of the two reports,

Write 50 on Reader Service Card

UPSCO Appoints George Geyer VP-Resource Mgmt/Admin

George W. Geyer

George W. Geyer has been appointed vice president of Resource Management and Administration of the Upper Peninsula Shipbuilding Company (UPSCO). UPSCO's facility in Ontonagon, Mich., specializes in the construction of tugs, barges, drydocks, and ships or other steel fabrication work.

Mr. **Geyer** came to UPSCO in 1980 from Babcock and Wilcox, where he began working as a senior business analyst, sales engineer, and senior project manager and subsequently became the manager of pricing applications in their Commercial Applications Department. His substantial managerial experience enables him to currently establish and control UPSCO's policies and procedures for personnel, purchasing, materials management, public relations, and contract administration.

Mr. **Geyer** attended the United States Merchant Marine Academy, where he received a B.S. degree in marine engineering and later sailed as an engineer on retrofit and automated vessels. After his service in the merchant marine, he obtained master's degrees in both business administration and industrial engineering from the University of Washington.

Dome Petroleum Signs Agreement To Export LNG For Japanese Utilities

Dome Petroleum Limited, Calgary, Canada, and NIC Resources Inc., a wholly owned subsidiary of Nissho-Iwai Corp., Japan, announced the signing of an agreement for the sale of 2.6 million tons per year (400 million cubic feet per day) of liquefied natural gas (LNG) from Canada to four Japanese utility companies. Serving some 45 million customers, the companies are: Chubu Electric Power, Osaka Gas, Kyushu Electric Power, and Toho Gas. The agreement provides for favorable Japanese financing for the LNG plant facility.

This recent agreement marks the first sale of LNG between Canada and Japan, and provides a major new market for surplus Canadian natural gas. The buyers have indicated that LNG from Canada will significantly assist Japanese efforts to diversify their LNG sources.

It is anticipated natural gas from western Canadian fields will be liquefied in a plant to be located on the west coast of Canada for marine shipment to Japanese receiving terminals. It is anticipated that the first deliveries will begin in late 1985.

The next steps in the project are to obtain approvals for facility construction, natural gas removal, and export from the relevant provincial and federal governments. Similar approvals from Japan to import Canadian LNG already have been arranged by the Japanese utility companies.

Desco Offers Capabilities Brochure

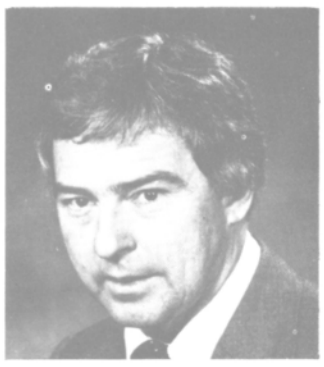
Desco Marine, St. Augustine, Fla., a division of Whittaker Corporation, recently published a new facility brochure. The brochure includes photographs and detailed descriptions of Desco's facility. equipment and engineering capabilities.

Desco Marine, a manufacturer of large fiberglass and wood trawlers, has a 27-acre manufacturing facility with 195,000 square feet under cover. The brochure depicts the entire plant as well as specific job sites. Equipment and tooling are available for large fiberglass production, woodworking, metalworking and internal metal work.

For a free copy of Desco's informative illustrated capabilities brochure,

Write 24 on Reader Service Card

Appoint Donald Challinor Senior Vice President At Burrard Yarrows



Donald W. Challinor

Donald W. Challinor was recently appointed senior vice president of Canadian ship repairer and shipbuilder Burrard Yarrows Corporation of Vancouver, succeeding **Ted Jones** who has retired.

Mr. **Challinor** joined Burrard Yarrows in 1966 and became general manager of the company's Victoria division in 1973.

William Greulich Named Assistant For Operations At SNAME Headquarters

William F. Greulich has joined the staff of The Society of Naval Architects and Marine Engineers, New York, N.Y., as assistant for operations. He will be acting as special assistant to **Robert G. Mende**, secretary and executive director of the Society.

Mr. **Greulich** was most recently the director of finance and administration and director of member services of the New York State Hotel and Motel Association.

Josef Walter Appointed General Manager Of Schottel-Hamburg

Josef Walter

Josef Walter was recently named general manager of Schottel-Hamburg, a subsidiary company of Schottel-Werft Josef Becker GmbH & Co., KG, Spay/Rhine, Germany.

He was previously the technical and commercial manager of the Comos Shipping Company, Vienna, Austria, where he introduced on the Danube River the first Schottel-Navigator units for the Comos fleet.

Mr. **Walter** succeeds **Heinz Dolberg**, who retired following 20 years of service. He will be an advisor to the company.

Technical Paper And Brochure Available From MarineSafety International

A new technical paper on maritime simulation training and information on current training programs is now available from MarineSafety International of New York City. The paper, which was presented at the recent Second International Conference on Marine Simulation held at Kings Point, makes some important points in putting practical training objectives in perspective with new simulator training hardware.

Also available is a 12-page, full-color illustrated brochure describing all of MarineSafety's training activities. This brochure also contains a description of the new ARPA (Automatic Radar Plotting Aid) training.

For additional information and free copies of the MarineSafety literature,

Write 57 on Reader Service Card

Award $1.6 Million To Sperry For Satellite Positioning System Work

The Sperry Division of Sperry Corporation recently received a $1.6-million contract from the U.S. Naval Air Development Center to integrate the new NAVSTAR Global Positioning System (GPS) capability into the current navigation system aboard a U.S. Navy aircraft carrier.

Although the initial integration and testing of the GPS capability for surface ships will be done aboard a carrier, the U.S. Navy plans to use this program to determine GPS capability for all its military surface ships. Integration programs also are being conducted by the Navy to apply the GPS system to naval aircraft, helicopters, and submarines under separate contracts.

Under the contract, Sperry will develop the hardware and software changes to integrate the GPS satellite receiver with the Ships Navigation and Aircraft Inertial Alignment System (SNAIAS) now aboard 13 Navy carriers. The SNAIAS currently provides ship's navigation information, as well as providing the initial alignment of naval aircraft navigation systems prior to launching from the carrier.

Sperry will build a laboratory model SNAIAS and then modify the SNAIAS aboard the Kitty Hawk aircraft carrier for at-sea tests of the system, which are scheduled to begin about October 1983.

The NAVSTAR Global Positioning System is a satellite-based ultra-high frequency positioning and navigation system, scheduled to be fully operational in 1986. Consisting of 18 satellites in orbits 10,900 miles high, the system will be able to provide highly accurate three-dimensional position, velocity, and time data anywhere in the world.

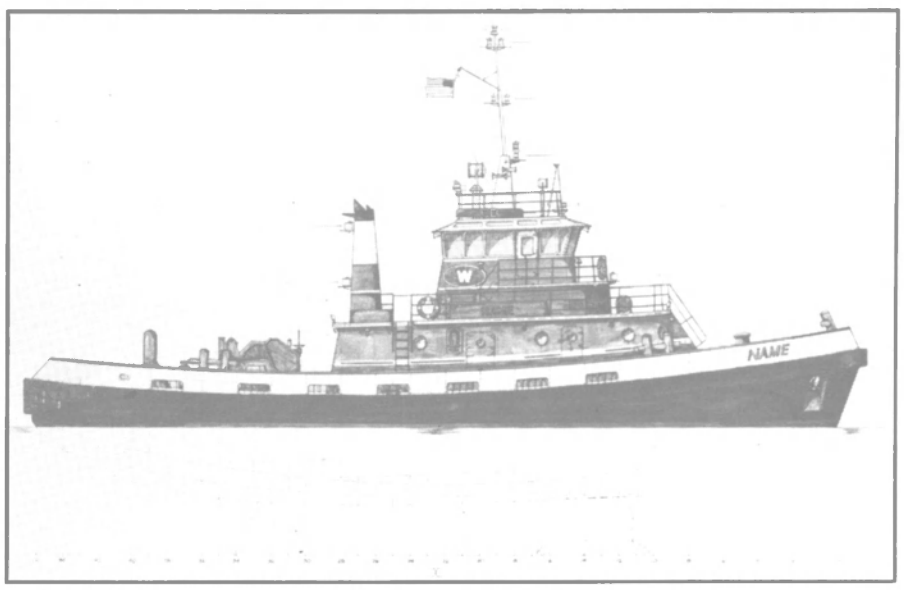
Mid-Coast To Build N&SA-Designed Voith Tractor Tug

Jack Wilskey, president of Mid-Coast Marine in Coos Bay, Ore., recently signed a contract to build a new Voith tractor tug for Willamette Tug & Barge, a division of Riedel International, Inc., Portland. The tug was designed by Nickum & Spaulding Associates, Inc. (N&SA), Seattle, Wash. This trend-setting vessel will have a Voith-Schneider cycloidal propeller system shipped to the United States for use in this U.S.-built and operated commercial tug. The new tractor tug will replace the steam-driven sternwheeler S/S Portland, designed by one of N&SA's parent companies—W.C. Nickum & Sons Co., Inc.

Mid-Coast Marine, Inc., the builder of the new tractor tug, has been constructing workboats since 1956. They are known for a broad range of tugboats built for the logging and dredging industry, as well as for a new line of fishing trawlers which were introduced in 1970.

Nickum & Spaulding has a long history of designing unique workboats. The firm recently designed a Voith tractor tug, which is currently undergoing sea trials in Singapore. This tug, and her sisters that are yet to follow, will see ship handling service in the Arabian Gulf. Design of the boat for Willamette Tug & Barge, however, has started a West Coast trend as evidenced by other recent building contracts for Voith tractor tugs.

This propeller system will enable the tractor tug to move more quickly and precisely while easing ships into and out of their Portland berths.



Outboard Profile

Principal Dimensions	
Length Overall	95'0"
Beam	32'0"
Draft	14'9"
Horsepower	2,600
Complement	6
Fuel	25,800 gallons

SNAME Los Angeles Holds First Meeting, Discusses Low Power Marine Steam Cycle

Shown during the first 1981-82 meeting of SNAME, Los Angeles Metropolitan Section, are, left to right: **George Stiehl,** chairman of the section; **George Henning,** vice chairman; **Paul Cromer,** author and presenter; Dr. **Maxwell Cheung,** secretary-treasurer; and **Gary Cash,** public relations chairman.

The first meeting of the 1981-1982 season of the Los Angeles Metropolitan Section of the Society of Naval Architects and Marine Engineers was held recently aboard the Princess Louise in the Port of Los Angeles.

George Stiehl, incoming chairman of the Section, opened the meeting and introduced the new officers: **George Henning,** vice chairman; and Dr. **Maxwell Cheung,** secretary-treasurer. Mr. **Henning** then introduced **Paul Cromer** of Todd Shipyard, San Pedro, author of the evening's paper titled "A Marine Steam Cycle for Low Powers."

The author described a steam cycle for propulsion plants of 5,000 hp or less, and stated that the purpose of the cycle was to provide a means for smaller vessels to use coal as a fuel. He utilized preliminary heat balance data for two sets of steam conditions for a plant of 2,500 hp as a basis for the discussion. Mr. **Cromer** said that recent orders for large coal burning marine steam turbine-powered ships is the result of present and projected prices of petroleum products and questioned the lack of similar new technology for smaller vessels that are usually powered by diesel or gas turbine systems.

He cited two developments that may make a simple, low-powered, coal burning turbine plant possible; the refinement of the controllable-reversible pitch (CRP) propeller; and the use of the main reduction gear for driving major plant auxiliaries.

The CRP propeller, when used with a geared steam turbine, eliminates the astern turbine and reduces the speed range over which the propulsion turbine is required to operate. The use of the main reduction gear for driving major auxiliaries, such as the shaft-driven generator, is common for ships with DRP propellers since most ocean transit time is spent at one turbine speed and power setting.

The author detailed the beginning steps in the design of a marine steam plant: the development of the steam cycle suitable to the application; and the prediction of the cycle's performance for a number of steam conditions.

The old drab door isn't what it used to be.

Marine Doors with adjustable Wrap-around Frames from Masonite Commercial Division. A timely reflection of current marine design trends. Available in Marlite® Brand melamine and virtually every high pressure laminate finish on the market today, each unit is a total system. A system that has been performance proven in the marine industry. A system that can be economically installed by one man in less than thirty minutes. Doors are prehung in adjustable frames and everything is factory machined and installed. Hinges, louvers, closers. The Wrap-around Frame is engineered especially for marine applications with each corner welded to resist stress. A continuous nylon filament gasket reduces fume and sound transmission. Finally, you get on-time delivery from our two strategically located plants. Get all the details on this and other marine interior products from our Marine Business Department. Write. Or Call toll free 800-321-4404, except Ohio. In Ohio (216) 343-6621.

MASONITE CORPORATION

COMMERCIAL DIVISION

Marine Business Department
202 Harger St.. Dover. Ohio 44622

Hitachi Zosen To Build Second Jackup For India

Hitachi Zosen, Tokyo, Japan, recently announced the company had received an order from the Oil and Natural Gas Commission (ONGC) of India to build a cantilever-type jackup offshore drilling rig.

The 66- by 61- by 7-meter rig (about 217 by 200 by 23 feet) is the second of its kind to be built by Hitachi for ONGC. The first rig, the Sagar Vikas, was completed in December 1980 at the Osaka Works (Sakai) and was placed in operation in the Bombay High. The new order is scheduled for completion by the end of 1983 and is intended for service in the same drilling area.

The new rig, to be built at the Osaka yard, will be capable of operating at water depths of up to 91.4 meters (300 feet) and can drill to a maximum depth of 6,096 meters (20,000 feet). It is designed to withstand waves up to 18.6 meters high and a wind speed of 54 meters per second. The jackup will be built to American Bureau of Shipping classification.

Tenfjord Of America To Service Steering Gear —Literature Available

Tenfjord of America, Inc. was recently formed in the United States to provide assistance and service in the U.S. for vessels equipped with Tenfjord steering systems.

The Tenfjord rotary ram unitized steering gear is currently in use on vessels worldwide and incorporates many advantages and safety features. For further information on Tenfjord of America and the rotary ram unitized steering gear,

Write 53 on Reader Service Card

Name Capt. Gunn Manager Of Canadian Operations For Farboil Company

Capt. **George S. Gunn** has been appointed manager of Canadian operations of Farboil Company, Baltimore, Md., **Joseph F. Harrington**, vice president, marine division, announced recently. In this newly created post, he will be responsible for developing distribution channels and sales in Canada, and will be based in Farboil's Toronto office.

Captain **Gunn** previously was manager of Bolton Marine Service, London, agents for Farboil in the U.K., and also was a marine consultant specializing in corrosion protection for ships and drilling rigs.

Farboil Company is a manufacturer of marine paints, coatings, and chemicals with worldwide distribution. It is a Beatrice Chemical Co., division of Beatrice Foods Co.

BIW Executive Elected To Chair Repair Committee Of Shipbuilders Council

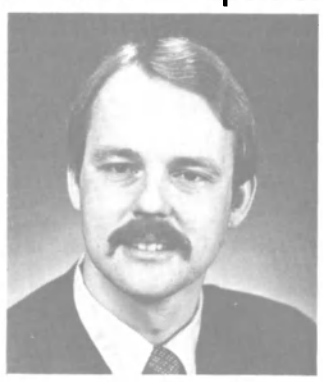
Veteran shipbuilding executive **Gordon H. Falt Jr.** of Bath Iron Works, Bath, Maine, has been elected chairman of the ship repair committee of the Shipbuilders Council of America, Washington, D.C.

He said his committee, representing over 20 U.S. shipyards, will work with the Navy and private industries to improve techniques for overhauling and repairing naval and commercial ships.

He also is vice president of the New England Ship Repair Yard Association, dedicated to bringing more ship repair projects to the New England area.

In his newly elected post with the Shipbuilders Council, a national professional association, Mr. **Falt** succeeds **J.G. Price**, vice president of Norfolk Ship. Mr. **Falt** is director of marketing for overhaul and repair at Bath Iron Works, a Congoleum company.

Name Michael Donelan Sales Manager For Inland Water Propulsion



Michael B. Donelan

Robert N. Stout, executive vice president, Midland Enterprises Inc., announced that **Michael B. Donelan** recently joined Midland's new subsidiary, Inland Water Propulsion Systems Inc., as sales manager. Mr. **Donelan** will be responsible for sales of the B&W Alpha Diesel propulsion systems. Midland recently announced agreement with the Danish firm to act as sales and service agents on the U.S. inland waterways for their complete line of marine diesel power plants.

Prior to joining Midland, Mr. **Donelan** was sales manager for Powerway Inc., a subsidiary of Riverway Company.

The Inland Water Propulsion Systems Inc. division of Midland Enterprises Inc. allows B&W Alpha Diesel to gain representation for its diesel systems over the entire U.S. inland waterways network.

Publish Brochure On Fiberglass Barge Covers

A new 12-page, four-color brochure describing cost-effective fiberglass covering systems for the marine industry has been published by Proform, Inc., Minneapolis, Minn. The products portrayed include lift-off inland barge covers, center loading, and rolling barge covers. All are light weight (1/3 the weight of steel), corrosion resistant and easily maintained. The durable fiberglass coverings increase cargo capacity and reduce contamination.

For a free copy of the Proform literature,

Write 49 on Reader Service Card

Dedicate New Container Terminal In Boston

The Port of Boston's newest maritime facility—an $18-million container terminal — was dedicated recently. Massport's executive director **David W. Davis,** and port director **Martin C. Pilsch Jr.** officiated at the ceremony.

The two-crane container facility expands the service at Massport's Paul W. Conley Marine Terminal, known formerly as the Castle Island Terminal, in South Boston. The 105-acre Conley Terminal is a major terminal for the discharge of general cargo—specifically lumber, automobiles and steel.

The new facility at berth 11 within the Conley Terminal includes two 40-long-ton, low-profile Paceco cranes; a 1,000-foot marginal wharf; and an initial 10 acres — potential development of 30 acres — of support area for wheeled storage. It will handle 20,000 boxes annually and increase the Port's handling capacity by 50 percent.

Executive director **Davis** noted that this was the first major maritime facility to be built in Boston in nearly a decade. "The development of new service facilities is critical to the Port's continuing economic growth," said Mr. **Davis.** "Massport believes in the future of the working seaport, and therefore is making a substantial investment in both new and existing facilities."

The container facility is the first development in Massport's $114-million seaport expansion program to be ready for service. The program includes the $16-million renovation of the Boston Fish Pier, the construction of the $80-million multipurpose Massport Marine Terminal, and the reuse of non-operational port properties such as Hoosac Pier and the East Boston Piers.

The Conley Terminal container facility will be operated by a private terminal operator.

Name Two Vice Presidents, Announce Appointments At Gulf Fleet Marine

Gulf Fleet Marine Corporation, New Orleans, La., has named **Gary D. Pope**, senior vice president-international operations. Mr. **Pope** will assume management responsibility for all aspects of Gulf Fleet's international activity, which includes major operations in Brazil, Mexico, Europe, Africa, Egypt, and the Middle East.

Prior to joining Gulf Fleet in 1974, he served as tax manager of Pott Industries, Inc., in St. Louis, Gulf Fleet's parent company. He will work out of Gulf Fleet's corporate headquarters in New Orleans.

The company also appointed **Roger T. White**, vice president-international marketing. Mr. **White**, who joined the company in 1975, will be responsible for Gulf Fleet's international marketing activities. He has served as vice president of Gulf Fleet's Latin American operation and will be based in New Orleans.

Gary D. Pope

Roger T. White

Wally Cox has been named Gulf Fleet's domestic sales manager and will assume total domestic marketing responsibility for the company's tugs, towing supply vessels, supply vessels, utility vessels and offshore deck barges. Since 1977 he has served as sales representative in the company's Lafayette office. Mr. **Cox** has 11 years of sales and management experience in oil field equipment and supplies.

John Belsome has joined the company as sales representative in Lafayette, La. Mr. **Belsome** has six years of experience in the marine industry.

SITTING ON TOP—The Keyes 301, the second L-780 self-elevating offshore drilling unit to be built for Keyes Offshore Companies, Houston, Texas, by Ingalls Shipbuilding, Pascagoula, Miss., is jacked to the top of its 390-foot legs during successful testing operations prior to recent delivery. The unit is now drilling for ARCO Oil and Gas Company off the Louisiana coast. Ingalls, the third largest rig builder in the country, has 14 additional units under contract, including two more for Keyes.

Cliffs Drilling To Use Hydranautics Equipment Ordered By National Supply

Hydranautics Hydraulic Systems, Goleta, Calif., announced recently the shipment of a cantilever and drill floor skidding system contracted by National Supply Company of Houston for use on a rig which has been committed for operation by Cliffs Drilling in the Texas Gulf. The equipment was specfied by the rig designer, Donhaiser Marine, Inc., also of Houston.

The contract called for Hydranautics to supply a set of 50-short-ton Gripper Jack assemblies, a set of 150-short-ton Gripper Jack assemblies and a control console. According to Hydranautics, the load skidding equipment will allow a substantial cut in the amount of fabricated steel that would otherwise be required in the construction of the rig.

Fred Ramsden, Fred West

"Our strict inspections mean these barges are ready for immediate loading on delivery"

Making certain the customers get everything they wanted, and that a barge can do everything it was designed to do, requires total knowledge of barges and their construction. HBC Barge Inspectors, Fred Ramsden and Fred West:

"We've both worked as welders, fitters and layout men here at HBC Barge. We know from experience what goes into a well-built barge, start to finish. We inspect, start to finish.

"Welding is tested with an Ultrasonic Tester for required penetration and solid integrity. Hydrostatic testing is run on every tank barge. Every seam is soap seal tested.

"Our air test on every barge is different than most. We test the whole barge, seam by seam, not just by compartments.

"We check on everything the blueprints and specs calls for, and everything that good construction requires, such as: fittings; pumping, piping and power systems; insulations, linings and coatings; and as perfectly straight barge construction as possible.

"The Coast Guard, and the American Bureau of Shipping, also inspects these barges. So do the customers' inspectors, some of whom say this is some of the finest work they have seen. They say virtually nothing gets past us.

"We try."

Get your next barge fleet from a couple of inspectors as tough as any river. HBC Barge builds barges in any size and configuration you need, for chemicals and other liquids, coal, grain and other commodities.

Go beyond options and get what you want.

For more information on getting your next barge fleet built to your specs, contact:

HBC Barge

HBC Barge, Inc.

Formerly named Hillman Barge & Construction Company.

Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

Free Encyclopedia And Technical Article On Anchoring From SeaTec

A 24-page Anchoring Encyclopedia and a technical article on pipeline anchoring are available free from SeaTec International, Ltd., Houston, Texas.

SeaTec, a worldwide marine contractor, and A.B. Chance Company, a developer and manufacturer of land anchors, recently combined efforts to offer pipeline anchors and anchoring services in North America and the U.K. SeaTec will be the exclusive A.B. Chance representative for offshore installations in this area.

Chance has 60 years of experience in anchor design, fabrication, and installation, including a computerized data base which contains samples from virtually every region in the United States. SeaTec has developed techniques for testing anchor holding power before, during, and after the installation, on land and offshore.

To meet customer requirements for fast supply and special applications, SeaTec has built a pipeline bracket fabrication facility in Houston.

The new association of the companies has resulted in the awarding of three contracts to supply Chance anchors and SeaTec installation equipment and techniques to contractors on the Northern Border Pipeline project running from Minnesota to Montana.

For free copies of the encyclopedia and article,

Write 23 on Reader Service Card

Santa Fe International To Merge With Kuwait Petroleum Corp.

Santa Fe International Corporation, Alhambra, Calif., and Kuwait Petroleum Corporation announced recently that the companies have signed a definitive merger agreement under which Santa Fe will become a U.S. subsidiary of the government-owned Kuwait Petroleum Corporation.

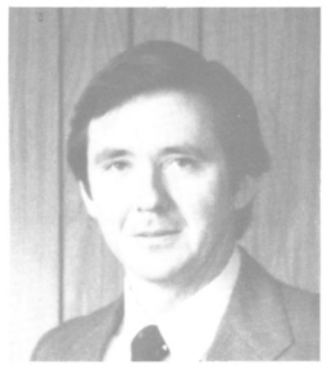
Santa Fe's board of directors has unanimously approved the merger agreement and has scheduled a special shareholders' meeting for December 1.

Santa Fe, an international drilling contractor, engages in oil and gas exploration and, through C.F. Braun & Co., in process engineering and construction. In 1980, Santa Fe had revenues of about $1.2 billion, half of which was derived from foreign operations.

Kuwait Petroleum is a commercial enterprise engaged through subsidiaries in the production, refining, and marketing of oil, natural gas, and petrochemicals, both in Kuwait and abroad. The Kuwait government has approved the transaction and it is now subject to the approval of Santa Fe stockholders.

Under the merger, stockholders will receive $51 for each share of common stock—a total of $2.5 billion for 49 million outstanding shares.

John Farrell Named VP Of ESAB North America's New Welding Division



John Farrell

John Farrell has been named to the position of vice president and general manager of the newly formed Robotic Welding Division of ESAB North America, Incorporated. The new division will handle all sales, service, and application development of ESAB's Robotic Welding Systems using the ASEA IRb6 all-electric robot and ESAB's computerized welding technology and equipment. ASEA is an ESAB associate. Mr. **Farrell** had been robot marketing manager of ESAB-HEATH. He will be based at the company's North American Headquarters in Fort Collins, Colo.

Nystron® proving better than Nylon for Marine Mooring Systems

Ten years ago Samson introduced a 21" cir. mooring hawser for the Ekofisk field that combined high tenacity polyester with nylon. These hawsers performed with 100% dependability until the buoy gave way to a pipeline.

Today that rope design is called NYSTRON, and many more tests and installations have shown it offers significant advantages over all-nylon ropes:

- Higher residual strengths under wet conditions
- Improved abrasion resistance
- More controlled and predictable elongation

In addition, NYSTRON composite fiber ropes have now been further improved with Samson's Duron® high tenacity polyester fiber technology combined with closely controlled BlueMark™ Nylon fibers.

Samson can give you this experience and technology by engineering and fabricating complete mooring systems, including terminations, chafe protection, flotation, rope coatings and support buoys... the only single source mooring capability available in the marine industry.

Make sure you get both cost effectiveness and dependability—talk to Samson before you design any mooring system.

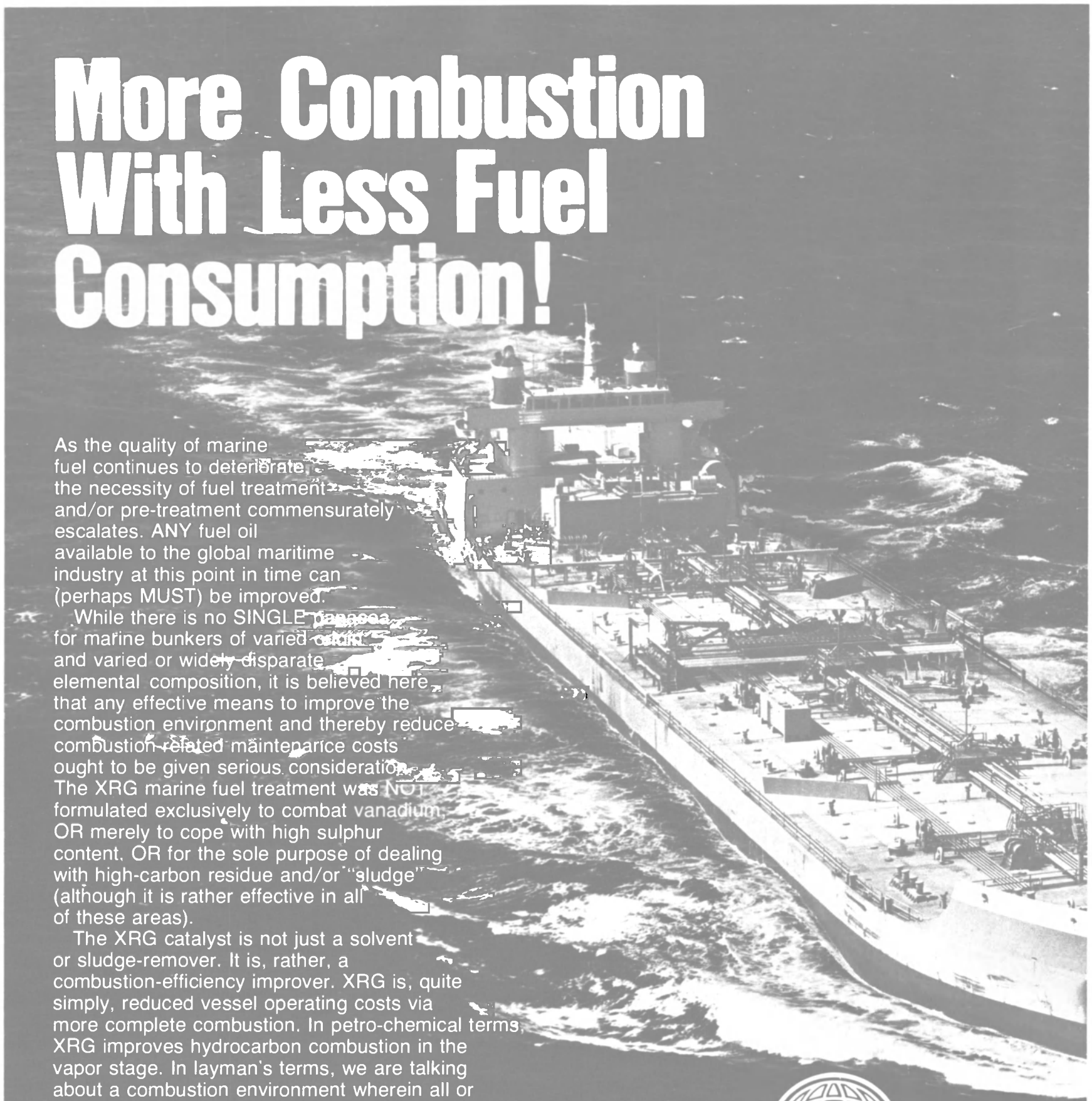
Send for descriptive literature and technical data. Contact Marine/Systems Div., Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110. Tel.: 617/426-6550.

The double BlueMark™ strands identify Samson's Nystron® composite double braid using Duron® fiber and high tenacity nylon for the highest strength-to-weight ratio available.

The Engineered Rope

A Subsidiary of CORPORATION

More Combustion With Less Fuel Consumption!



As the quality of marine fuel continues to deteriorate, the necessity of fuel treatment and/or pre-treatment commensurately escalates. ANY fuel oil available to the global maritime industry at this point in time can (perhaps MUST) be improved.

While there is no SINGLE panacea for marine bunkers of varied origin and varied or widely disparate elemental composition, it is believed here that any effective means to improve the combustion environment and thereby reduce combustion-related maintenance costs ought to be given serious consideration. The XRG marine fuel treatment was NOT formulated exclusively to combat vanadium, OR merely to cope with high sulphur content, OR for the sole purpose of dealing with high-carbon residue and/or "sludge" (although it is rather effective in all of these areas).

The XRG catalyst is not just a solvent or sludge-remover. It is, rather, a combustion-efficiency improver. XRG is, quite simply, reduced vessel operating costs via more complete combustion. In petro-chemical terms, XRG improves hydrocarbon combustion in the vapor stage. In layman's terms, we are talking about a combustion environment wherein all or nearly all of a given fuel's inherent BTU value is combusted and thus utilized.

XRG

No. 1208 1 June 1981

COMBUSTIBLE LIQUID

Certificated for use as an article of stores on board vessels. This certification only covers hazard in use of this product. The efficiency of this product is not passed upon.

U.S. Coast Guard

For More Information Write or Call:

Commercial Marine Division
XRG International, Inc.
4125 S.W. Martin Hwy., Stuart, FL 33494
(305) 283-9300 (800) 327-7004

DISTRIBUTOR INQUIRIES INVITED

Name McIngvale Regional Marketing Manager For Golden Gulf Marine

Ralph C. McIngvale

Golden Gulf Marine Operators, Inc., a New Orleans-based offshore service vessel operator, recently announced the appointment of **Ralph C. McIngvale** to the position of regional marketing manager for the Houston and Gulf Coast area.

In his new position, Mr. **McIngvale** will be responsible for the marketing of Golden Gulf's 18 new 180-foot supply vessels, seven 110-foot utility boats, and five crewboats which range from 65 feet to 100 feet in length.

Mr. **McIngvale** comes to Golden Gulf Marine with experience in marketing and vessel operations. He was previously a senior marketing representative with Gulf Fleet Marine Corporation based in the Houston area.

Elect Galloway To Board Of Maritime Exchange

Edward J. Desher, president of The Philadelphia Maritime Exchange, has announced the election of **John R. Galloway** to the board of directors. Mr. **Galloway** is the public affairs director, Eastern region, for Gulf Oil Corporation. He fills a vacancy left by the resignation of Capt. **Klaus Matthes,** manager of U.S. operations for Gulf Trading and Transportation Company. Captain **Matthes** has been transferred to Houston, Texas.

CP Propeller Order To Tacoma Boat/Escher Wyss For Alaska Patrol Vessel

Tacoma Boat / Escher Wyss, Tacoma, Wash., a subsidiary of Tacoma Boatbuilding Company, was recently awarded a $336,175 contract by Nichols Bros. Boat Builders, Inc., Freeland, Wash. to supply two 60-inch-diameter, Tacoma Boat/Escher Wyss controllable-pitch propellers for the state of Alaska fisheries patrol vessel.

The vessel, designed by Jensen Maritime Consultants, Inc., formerly B.F. Jensen and Associates of Seattle, Wash., has an overall length of 121 feet 6 inches, a molded breadth of 28 feet and a depth of 12 feet 6 inches.

Designed for a cruising speed of 15 knots, the vessel is powered by two Detroit Diesel model 16V-149 TI marine engines coupled to Reintjes model WAV 1050 modified marine reduction gears with a 3.5:1 reduction ratio.

Tacoma Boat/Escher Wyss also has under contract eight controllable-pitch propellers to be installed on four twin-screw, 245-foot patrol chaser missile vessels (PCG) for the U.S. Navy, and eight controllable-pitch propellers for four twin-screw, 270-foot medium endurance cutters (WMEC) for the U.S. Coast Guard.

Extensive testing of the first shipset of PCG propellers has been successfully completed. These propellers, 9 feet in diameter, and designed to absorb 11,500 horsepower each at 350 rpm, have been spin tested for 300 hours continuously at various speed increments up to 385 rpm.

The WMEC propellers, also 9 feet in diameter, and rated for 3,500 horsepower at 260 rpm, have a requirement of spin testing only the first shaft line with the remaining systems to be functionally tested. Testing on these propellers has been ongoing over the past several months.

The test facility included in the operations is capable of spin testing propellers up to 16 feet in diameter at rated speed, and with maximum weights of approximately 400,000 pounds.

The Alaska fisheries patrol vessel CP propellers are scheduled for delivery in April of 1982.

Stanley Introduces New Hydraulic Air Compressor —Brochure Available

Stanley Hydraulic Tools, Milwaukie, Ore., manufacturer of a complete line of hydraulic powered hand tools for construction, utilities, municipalities, and marine use, has introduced its new AC24 hydraulic air compressor.

Compact and easy to operate, the AC24 is powered by a direct-drive hydraulic motor. It provides ample capacity for gas line testing and for operation with the Stanley SK58 sinker drill, for chip removal, without the need for a bulky pneumatic air compressor.

Producing 24 scfm at 100 psi, the AC24 includes an aftercooler and an adjustable automatic compressor unloader valve.

For a free copy of the literature,

Write 44 on Reader Service Card

Ship Microcomputers Discussed At SNAME Northern California

A paper entitled "The Design and Selection of Shipboard Microcomputer Systems" was presented at a recent meeting of the Northern California Section of The Society of Naval Architects and Marine Engineers held in San Francisco.

Stanley Stockdale, senior associate of David J. Seymour, Ltd., San Bruno, discussed the characteristics of microcomputer systems, and their use on ships to automate navigation equipment, control autopilots, monitor engine room alarms, record vessel motions and stress levels, and calculate vessel trim, stability and longitudinal strength. Mr. **Stockdale** offered guidelines for the successful implementation of a shipboard computer system.

An unusual aspect of the lecture was Mr. **Stockdale's** on-stage use of an Apple III microcomputer and a large video screen to project the computer output. The audience of about 150 watched the computer's response as Mr. **Stockdale** demonstrated aspects of strength and stability programs he had written.

The lecture was the first of a regular monthly series of meetings of the Northern California Section of The Society of Naval Architects and Marine Engineers in 1981-1982. Copies of the paper are available from **R. Keith Michel**, Papers Committee, Herbert Engineering, 88 First Street, San Francisco, Calif. 94105.

Aeroquip Introduces New Fire-Resistant Hose —Literature Available

Aeroquip Corporation of Jackson, Mich., has added a new member to its family of AQP hose styles—FC234 AQP fire-resistant hose. Developed by Aeroquip for the Industrial Division, FC234 hose has proven to be a superior fuel line for critical marine applications in commercial marine, industrial marine, and industrial equipment markets.

Aeroquip FC234 AQP hose features a highly visible blue cover that will not support combustion, and a permanently embossed layline. The smaller sizes also feature a built-in woven refractory fiber insulation layer that maintains fire-resistance without extra sleeves or asbestos fiber. The FC-234 hose survives exposure for 2½ minutes in a gasoline-fed fire with peak temperatures beyond 1200 F.

Aeroquip engineers developed FC234 hose to meet U.S. Coast Guard (46CFR56.60-25c) and Underwriters Laboratories fire test requirements (UL-1114) without a separate firesleeve. Aeroquip FC234 hose is said to be easier to assemble and install than conventional hose covered with a sleeve, and is less expensive than sleeve-protected hose styles designed for comparable use.

The new FC234 hose, like all Aeroquip AQP hoses, incorporates a tube and cover made from a superior elastomeric material which offers broad fluid compatibility and indefinite shelf life.

For a free copy of Aeroquip Bulletin IEB-246A,

Write 19 on Reader Service Card

ing domestic drilling contracting

Alfa-Laval Separators

Name McIngvale Regional Marketing Manager For Golden Gulf Marine

Ralph C. McIngvale

Golden Gulf Marine Operators, Inc., a New Orleans-based offshore service vessel operator, recently announced the appointment of **Ralph C. McIngvale** to the position of regional marketing manager for the Houston and Gulf Coast area.

In his new position, Mr. **McIngvale** will be responsible for the marketing of Golden Gulf's 18 new 180-foot supply vessels, seven 110-foot utility boats, and five crewboats which range from 65 feet to 100 feet in length.

Mr. **McIngvale** comes to Golden Gulf Marine with experience in marketing and vessel operations. He was previously a senior marketing representative with Gulf Fleet Marine Corporation based in the Houston area.

Elect Galloway To Board Of Maritime Exchange

Edward J. Desher, president of The Philadelphia Maritime Exchange, has announced the election of **John R. Galloway** to the board of directors. Mr. **Galloway** is the public affairs director, Eastern region, for Gulf Oil Corporation. He fills a vacancy left by the resignation of Capt. **Klaus Matthes,** manager of U.S. operations for Gulf Trading and Transportation Company. Captain **Matthes** has been transferred to Houston, Texas.

CP Propeller Order To Tacoma Boat/Escher Wyss For Alaska Patrol Vessel

Tacoma Boat / Escher Wyss, Tacoma, Wash., a subsidiary of Tacoma Boatbuilding Company, was recently awarded a $336,175 contract by Nichols Bros. Boat Builders, Inc., Freeland, Wash. to supply two 60-inch-diameter, Tacoma Boat/Escher Wyss controllable-pitch propellers for the state of Alaska fisheries patrol vessel.

The vessel, designed by Jensen Maritime Consultants, Inc., formerly B.F. Jensen and Associates of Seattle, Wash., has an overall length of 121 feet 6 inches, a molded breadth of 28 feet and a depth of 12 feet 6 inches.

Designed for a cruising speed of 15 knots, the vessel is powered by two Detroit Diesel model 16V-149 TI marine engines coupled to Reintjes model WAV 1050 modified marine reduction gears with a 3.5:1 reduction ratio.

Tacoma Boat/Escher Wyss also has under contract eight controllable-pitch propellers to be installed on four twin-screw, 245-foot patrol chaser missile vessels (PCG) for the U.S. Navy, and eight controllable-pitch propellers for four twin-screw, 270-foot medium endurance cutters (WMEC) for the U.S. Coast Guard.

Extensive testing of the first shipset of PCG propellers has been successfully completed. These propellers, 9 feet in diameter, and designed to absorb 11,500 horsepower each at 350 rpm, have been spin tested for 300 hours continuously at various speed increments up to 385 rpm.

The WMEC propellers, also 9 feet in diameter, and rated for 3,500 horsepower at 260 rpm, have a requirement of spin testing only the first shaft line with the remaining systems to be functionally tested. Testing on these propellers has been ongoing over the past several months.

The test facility included in the operations is capable of spin testing propellers up to 16 feet in diameter at rated speed, and with maximum weights of approximately 400,000 pounds.

The Alaska fisheries patrol vessel CP propellers are scheduled for delivery in April of 1982.

Stanley Introduces New Hydraulic Air Compressor —Brochure Available

Stanley Hydraulic Tools, Milwaukie, Ore., manufacturer of a complete line of hydraulic powered hand tools for construction, utilities, municipalities, and marine use, has introduced its new AC24 hydraulic air compressor.

Compact and easy to operate, the AC24 is powered by a direct-drive hydraulic motor. It provides ample capacity for gas line testing and for operation with the Stanley SK58 sinker drill, for chip removal, without the need for a bulky pneumatic air compressor.

Producing 24 scfm at 100 psi, the AC24 includes an aftercooler and an adjustable automatic compressor unloader valve.

For a free copy of the literature,

Write 44 on Reader Service Card

Ship Microcomputers Discussed At SNAME Northern California

A paper entitled "The Design and Selection of Shipboard Microcomputer Systems" was presented at a recent meeting of the Northern California Section of The Society of Naval Architects and Marine Engineers held in San Francisco.

Stanley Stockdale, senior associate of David J. Seymour, Ltd., San Bruno, discussed the characteristics of microcomputer systems, and their use on ships to automate navigation equipment, control autopilots, monitor engine room alarms, record vessel motions and stress levels, and calculate vessel trim, stability and longitudinal strength. Mr. **Stockdale** offered guidelines for the successful implementation of a shipboard computer system.

An unusual aspect of the lecture was Mr. **Stockdale's** on-stage use of an Apple III microcomputer and a large video screen to project the computer output. The audience of about 150 watched the computer's response as Mr. **Stockdale** demonstrated aspects of strength and stability programs he had written.

The lecture was the first of a regular monthly series of meetings of the Northern California Section of The Society of Naval Architects and Marine Engineers in 1981-1982. Copies of the paper are available from **R. Keith Michel,** Papers Committee, Herbert Engineering, 88 First Street, San Francisco, Calif. 94105.

Aeroquip Introduces New Fire-Resistant Hose —Literature Available

Aeroquip Corporation of Jackson, Mich., has added a new member to its family of AQP hose styles—FC234 AQP fire-resistant hose. Developed by Aeroquip for the Industrial Division, FC234 hose has proven to be a superior fuel line for critical marine applications in commercial marine, industrial marine, and industrial equipment markets.

Aeroquip FC234 AQP hose features a highly visible blue cover that will not support combustion, and a permanently embossed layline. The smaller sizes also feature a built-in woven refractory fiber insulation layer that maintains fire-resistance without extra sleeves or asbestos fiber. The FC-234 hose survives exposure for 2½ minutes in a gasoline-fed fire with peak temperatures beyond 1200 F.

Aeroquip engineers developed FC234 hose to meet U.S. Coast Guard (46CFR56.60-25c) and Underwriters Laboratories fire test requirements (UL-1114) without a separate firesleeve. Aeroquip FC234 hose is said to be easier to assemble and install than conventional hose covered with a sleeve, and is less expensive than sleeve-protected hose styles designed for comparable use.

The new FC234 hose, like all Aeroquip AQP hoses, incorporates a tube and cover made from a superior elastomeric material which offers broad fluid compatibility and indefinite shelf life.

For a free copy of Aeroquip Bulletin IEB-246A,

Write 19 on Reader Service Card

Texaco Grant For Webb Institute

Vice Admiral **Bryan**, president of Webb Institute (left), accepting a $5,000 contribution from vice president **James A. Cole Jr.** (right) of Texaco Inc.

Webb Institute of Naval Architecture, Glen Cove, N.Y., recently received a $5,000 grant from Texaco Inc.

Institute officials said that the contribution will be used for the general scholarship program to further its curriculum in naval architecture and marine engineering.

Vice Admiral **Bryan**, president of Webb, stated that "The Texaco Inc. contribution will be used to offset the unabated rise in Webb's costs and will help assure the continuation of our tuition-free policy." The grant was made on behalf of Texaco by **James A. Cole Jr.**, vice president.

NRC Releases Study Assessing The Safety Of OCS Offshore Oil

The National Academy of Engineering recently released its study of "Safety and Offshore Oil." This document was commissioned by the U.S. Geological Survey and the U.S. Coast Guard in response to a provision of the OCS Lands Act Amendments of 1978.

In June, 1979, the Geological Survey requested that the National Research Council (NRC) undertake an assessment of the adequacy of technologies and regulations as a major contribution to the mandated study. For its part, the NRC appointed the Committee on Assessment of Safety of Outer Continental Shelf (OCS) Activities to conduct the assessment under the aegis of the Marine Board.

The Committee conducted a comprehensive assessment of safety on the outer continental shelf, taking "safety" to include that of people, the marine environment and property, and encompassing the lessening of risk and the avoidance of accidents. In its work, the Committee did not attempt to place OCS oil and gas development in perspective with other resource development activities. With regard to assessing the adequacy of regulations, the Committee directed its attention to regulatory practice and compliance. No attempt was made to broaden this evaluation into a management audit of government responsibilities and programs.

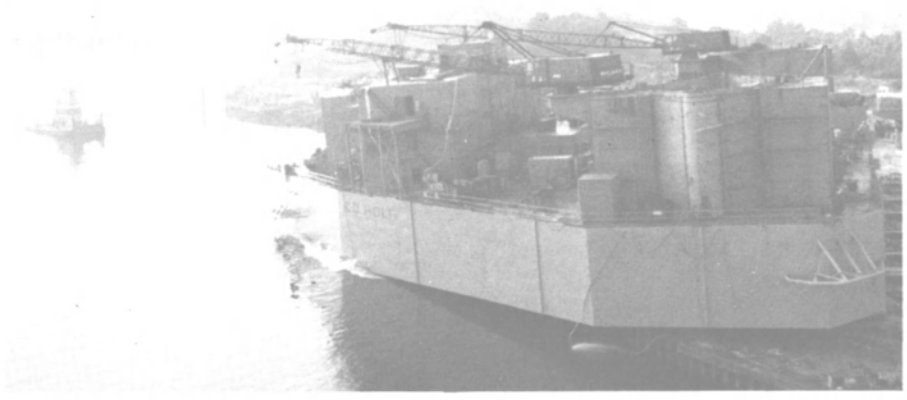
The Committee initiated its study with a request for information and opinions on the safety of OCS activities from interested parties. This served to identify sources of public and industrial concerns. The Committee then reviewed the historical record of the safety of OCS activities and the conclusions and recommendations of previous studies. The Committee then assembled data on OCS technologies and regulations, organizing the data by areas of safety concerns.

The final task of the Committee was to prepare for each area of safety a technical description of technologies and regulations for analysis and assessment.

The final assessment of adequacy is a judgment and is the consensus arrived at by the Committee through collective evaluation of the technical analysis and discussion.

This report may well be the basis for other studies and additional offshore safety regulations in the future.

Copies of "Safety and Offshore Oil" are available for $11 from the National Academy Press, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.



The Ed Holt, a Class 111-C self-elevating mobile offshore drilling unit, is launched at Levingston Shipbuilding Company, Orange, Texas.

Levingston Launches The Ed Holt, First Of Two Jackups For Noble Drilling

Levingston Shipbuilding Company, Orange, Texas, recently launched the first of two jackup drilling rigs for Noble Drilling Corporation of Ardmore, Okla. Noble Drilling, one of the leading domestic drilling contracting firms, formed in 1921, is a wholly owned subsidiary of Noble Affiliates, Inc. It owns seven platform rigs, three shallow-water mobile rigs, three inland barge rigs, and 34 land rigs.

Named the Ed Holt, the overall dimensions of the triangular-shaped rig are 200 feet by 186 feet by 23 feet. The 414-foot-long four-chord square-truss legs allow the vessel to drill in water depths up to 300 feet to a maximum well depth of 25,000 feet. Approximate cost of this rig is $37 million.

Design criteria of the cantilevered unit make it capable of operating under the harshest weather conditions. This self-elevating platform will be able to withstand winds of up to 109 knots and seas of 50 feet. Accommodations will be provided for a crew of 54.

Alfa-Laval Separators Offered In Two Series —Literature Available

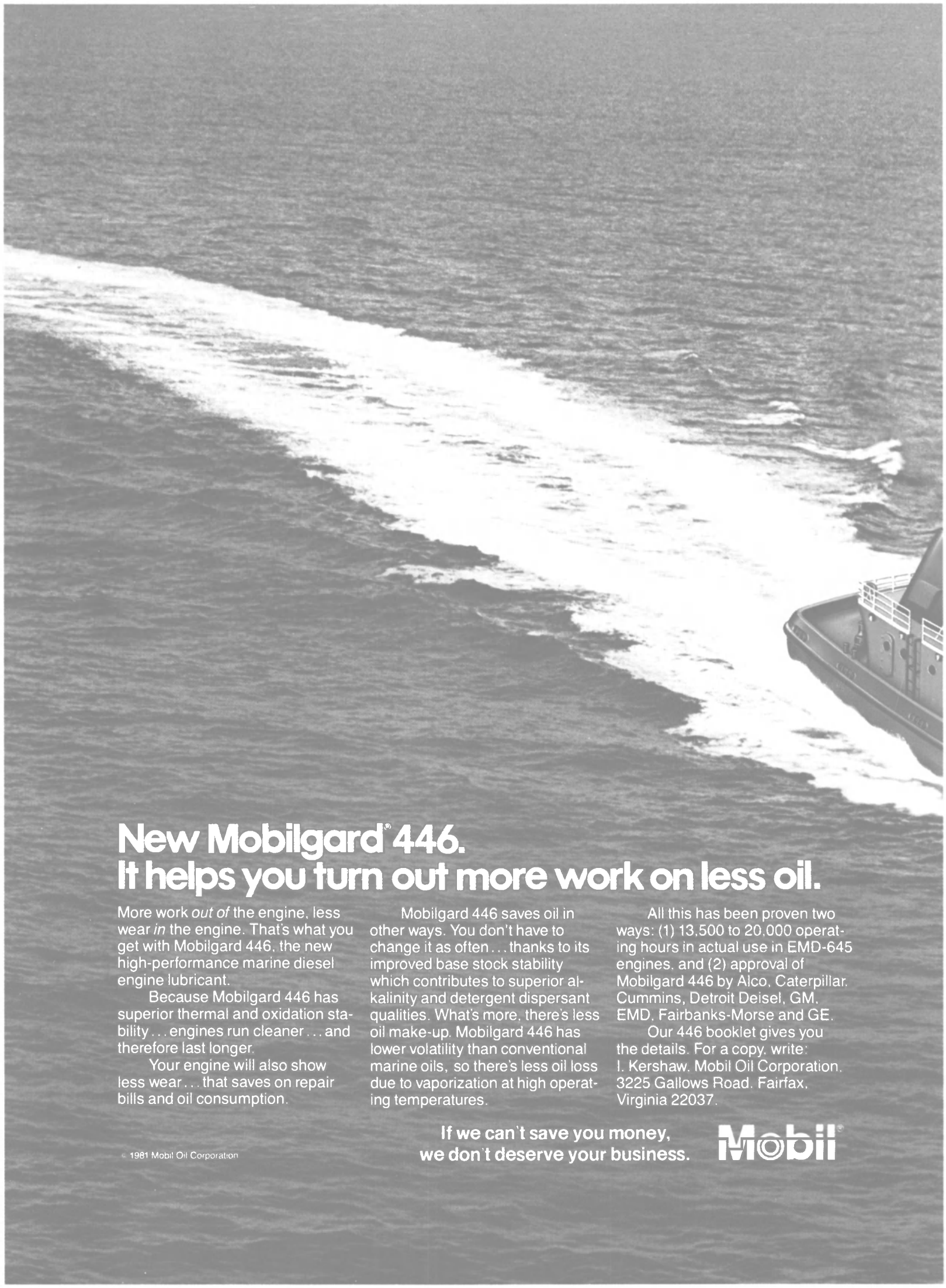
An eight-page illustrated brochure describing the capabilities of two series of MAB separators for marine and mineral oils has been published by Alfa-Laval Inc., Fort Lee, N.J.

The company's 200 and 100 series are depicted with photographs and dimensional drawings of the units in which components are identified. An installation chart and specifications also are included.

The MAB 200 separator series has five models of high-speed centrifugals which are designed to remove impurities from mineral oils in a continuous process. The two-model 100 separator series is designed for smaller capabilities.

For a free copy of the brochure,

Write 10 on Reader Service Card



New Mobilgard® 446. It helps you turn out more work on less oil.

More work *out of* the engine, less wear *in* the engine. That's what you get with Mobilgard 446, the new high-performance marine diesel engine lubricant.

Because Mobilgard 446 has superior thermal and oxidation stability . . . engines run cleaner . . . and therefore last longer.

Your engine will also show less wear . . . that saves on repair bills and oil consumption.

Mobilgard 446 saves oil in other ways. You don't have to change it as often . . . thanks to its improved base stock stability which contributes to superior alkalinity and detergent dispersant qualities. What's more, there's less oil make-up. Mobilgard 446 has lower volatility than conventional marine oils, so there's less oil loss due to vaporization at high operating temperatures.

All this has been proven two ways: (1) 13,500 to 20,000 operating hours in actual use in EMD-645 engines, and (2) approval of Mobilgard 446 by Alco, Caterpillar, Cummins, Detroit Deisel, GM, EMD, Fairbanks-Morse and GE.

Our 446 booklet gives you the details. For a copy, write: I. Kershaw, Mobil Oil Corporation, 3225 Gallows Road, Fairfax, Virginia 22037.

If we can't save you money, we don't deserve your business.

Mobil®

Detroit Diesel Publishes Literature On Range Of Low Profile Engines

The Detroit Diesel Allison Division of General Motors Corporation, Detroit, Mich., has published data sheets containing easy-to-read specifications of its marine models of low profile engines.

The literature covers the 280-hp, 335-hp, 525-hp, 570-hp, and 675-hp engines. Each data sheet contains a photograph of the particular engine, model numbers available, and schematic drawings illustrating the engine's principal dimensions.

For a free copy of the data sheets of the low profile engine series,

Write 35 on Reader Service Card

Twelve Prominent Marine Industry Executives Are Elected Members Of ABS

Twelve maritime industry executives from six countries were elected members of the American Bureau of Shipping (ABS) at the semiannual meeting of the international ship classification society held recently at ABS headquarters in New York, N.Y. The new members are: Dr. **Elcio Costa Couto**, superintendent, SUNAM-AM — Superintendencia Nacional de Marinha Mercante — Rio de Janeiro, Brazil; **Leonard Erb**, president, Ingalls Shipbuilding, Pascagoula, Miss.; **Panagos S. Fafalios**, managing director, Fafalios Shipping S.A., Piraeus, Greece; Vice Adm. **James S. Gracey**, USCG, Commander-Atlantic area and Third Coast Guard District, New York, N.Y.; **George J. Hossfeld Jr.**, president, Jakobson Shipyard, Inc., Oyster Bay, N.Y.; **K.M. Koo**, managing director, Valles Steamship Company, Ltd., Hong Kong; **V.J. LeBlanc**, vice president and group executive, McDermott Incorporated, New Orleans, La.; **Raymond Lemay**, president, Canada Steamship Lines Inc., Montreal, Quebec, Canada; Rear Adm. **Clyde T. Lusk Jr.**, USCG, chief, Office of Merchant Marine Safety, Washington, D.C.; **Kenneth M. Mole**, assistant vice president/general manager, ABS Computers, Inc., New York, N.Y.; **Thomas J. Rechanti**, president, Fruehauf Corporation, Detroit, Mich.; and **R.W. Scheffer**, group managing director, Smit International, Rotterdam, Netherlands.

Richard Place Named General Manager For Schottel In South America

Richard F. Place has been appointed the general manager of Schottel-Sudamericana ICSA, Buenos Aires, Argentina, a subsidiary company of the international Schottel Group.

He succeeds **H.P. Frahne**, who retired after 18 years of service.

Mr. **Place** has held positions as a sales engineer for other international organizations and previously was the commercial manager at Concast Latinoamerica.

Bulletin Describes Racor's Line Of Separator Systems For All Diesel Engines

Racor Industries, Inc., Modesto, Calif., offers an eight-page brochure describing and illustrating its products for use on marine diesel engines. Included are fuel filter/water separators, in-line fuel heater, in-filter fuel heater, water sensor light/alarm kit, and vacuum gauge & vacuum/pressure gauge.

Racor fuel filter/water separator models are available for most marine applications. These models have been tested extensively to meet U.S. Coast Guard requirements, and are Marine UL Listed by Underwriters Laboratories. Multiple units with individual filter separator valving permit continuous engine operation, at reduced flow rates, during servicing.

For further information and a free copy of the brochure,

Write 27 on Reader Service Card

WELCOME TODD SHIPYARDS
TO THE
SYNCROLIFT® FAMILY

Todd Pacific Shipyards Corp., Los Angeles division, has just become the newest member of the Syncrolift family . . . . now 148 installations in 58 countries. When completed, the Todd Syncrolift will be the largest shiplift in the world . . . 655 feet long, 106 feet wide, with a lifting capacity for vessels up to 48,000 DWT. An adjacent transfer system will enable the yard to service five maximum size ships ashore at one time.

Center photo at right shows 43,600 DWT vessel on Syncrolift at Tandanor S.A. yard in Buenos Aires. Lifting platform dimensions, 606' long x 105' wide.

Photo at lower right shows 16 vessels in workberths ashore at Astilleros Canarios, S.A., Las Palmas, Canary Islands.

SYNCROLIFT®
SHIPLIFT & TRANSFER SYSTEMS
8970 S.W. 87th CT. • P.O. BOX 560008 • MIAMI, FLORIDA 33156
PHONE: 305-271-5721 • TELEX: 051-9340

A PRODUCT OF
PEARLSON ENGINEERING COMPANY, INC.
A MEMBER OF THE NEI GROUP
The Most Experienced Builder of Shiplift Systems in The World
R. PEARLSON LTD. EXCLUSIVE REPRESENTATIVES

Dixilyn-Field To Use Hydranautics Equipment On Jackup Rig 87

Hydranautics Hydraulic Systems, Goleta, Calif., has announced that Dixilyn-Field's Rig 87, which is capable of drilling to 25,000 feet in water depths up to 300 feet, will use two Hydranautics 350-ton pin claw jacking assemblies for cantilever skidding and two Hydranautics 125-ton pin claw jacking assemblies for drill floor skidding. The equipment is already installed on the Levingston Class 111-C jackup and is undergoing commissioning by Dixilyn-Field. The rig is under contract to Mobil for drilling off the coast of Nigeria.

According to Hydranautics, the installation includes a composite power unit and control console that will operate all of the hydraulic power tools.

Alnor Instrument Publishes Brochure On New Engine Temperature Monitors

A new four-page color brochure detailing the operations, features, and applications of a series of temperature analyzing instruments for diesel, natural-gas and gasoline-powered reciprocating engines has been published by the Alnor Instrument Company, Niles, Ill.

The brochure highlights the Micro 5300 Series engine temperature monitoring system offered in five different models: single engine, dual engine, engine-compressor, single turbine, and dual turbine. The new instruments feature high-speed scan rates, temperature averaging and deviation analysis as well as extensive alarm capabilities for immediate detection of abnormal engine operating conditions.

Designed to continuously monitor and display engine and turbine cylinder exhaust temperatures from engine startup through peak, the Micro 5300 scans up to 32 temperature zones at the rate of 60 inputs per second. Other engine temperatures, such as lubricating oil, cooling water and turbocharger and intake air, also may be monitored to warn of deviation from normal.

A full-color diagram explains features on the front panel, including 10-digit LED display, separate high-temperature and deviation alarm settings, and adjustable display rate knob. A memory circuit stores the readings as soon as an alarm is triggered, for later recall and analysis.

Specifications are listed in the brochure, including dimensions, temperature range, accuracy, and power consumption.

For a free copy of Alnor Micro 5300 brochure TM-23,

Write 32 on Reader Service Card

Appoint Phillip Wright Managing Director Of Burnside Marine Terminal

Phillip J. Wright

Phillip J. Wright has been appointed managing director of Burnside Marine Terminal, Burnside, La. The announcement was made recently by **Charles F. Jacques,** vice president, Ormet Corporation, the parent company of Burnside Terminal.

"We are delighted to have a person of Mr. **Wright's** professional background and management experience," Mr. **Jacques** said. Mr. **Wright** has 25 years' experience in marine transportation, terminal management, and as a sales executive. He was graduated from the University of Tennessee and served as a ship's officer and stevedore in the U.S. Army.

Silver Knight Award For Carl R. Meurk Of Todd

Carl R. Meurk

Carl R. Meurk, executive vice president of Todd Pacific Shipyards, was the recipient of the National Management Association's Silver Knight award in the NMA Todd Seattle Chapter's special presentation recently at the Tyee Yacht Club.

The Silver Knight of Management is the highest award the NMA chapters can give an outstanding executive. This is the first major award that Todd Seattle Chapter, now in its third year, has bestowed on one of its own members.

The Seattle Chapter nominated Mr. **Meurk** for his outstanding contribution to the company and the shipbuilding industry for more than 30 years. Mr. **Meurk,** who is also vice president-West Coast of Todd Shipyards Corporation, has been associated with Todd Seattle for 22 of his 33 years with Todd.

$6-Million Navy Order For Gas Turbine Recovery System

Solar Turbines Incorporated, San Diego, Calif., has been awarded a $6,379,779 cost plus award fee contract for development of a gas turbine waste heat recovery system for use as a high efficiency cruise propulsion plant on non-nuclear combatants. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-5340)

Great Lakes Transportation Publication Available

An inventory of American commercial shipping vessels used in ocean trade and on inland waterways is compiled and published annually in a three-part series by the Waterborne Commerce Statistics Center of the U.S. Army Corps of Engineers' Water Resources Support Center.

The center announced recently that the 28-page 1980 edition of Transportation Series 3, "Transportation Lines on the Great Lakes System," is available and may be purchased for $1 from the New Orleans Engineer District, LMNED-S, P.O. Box 60267, New Orleans, La. 70160. Other parts of the series will become available in the near future.

Publish Literature On Stern Tube Lubrication System From Waukesha

Literature describing the company's automatic Circoolmatic oil circulation and cooling system for stern tube seal lubrication has been published by Waukesha Bearings Corporation, Waukesha, Wis. The system is recommended for 710 mm seal systems and larger.

Circoolmatic pumps oil from the forward seal through a sea-or-freshwater cooling system, providing maximum lubrication. Oil may also be used as a coolant and may be pumped from the mainstern tube bearing sump into the cooling coil, then into the main head tank.

The Circoolmatic is a flooded circulating type system, with the seals, reservoir, and circulating pump fitted and primed at all times to maintain seal oil at a satisfactory cooling level. Standard features included are a fail-safe alarm system; pilot lights indicating proper pump operation and adequate oil level; and an audible alarm that signals low oil level.

For a free copy of the literature on the Waukesha Circoolmatic system,

Write 14 on Reader Service Card

New Marine Equipment Catalog Offered By Willem Pot Of Holland

A 42-page catalog of the company's stock of ship's auxiliary machines and anchor and chain cable equipment has been published by Willem Pot B.V., Rotterdam, Netherlands.

Included are 46 categories of new and reconditioned equipment available including deck machinery, engine room machinery, anchors and chain cable, and deck equipment. Each item listed includes a description, the number of units available, and technical specifications. There are several photographs as well as illustrative drawings and tables of specifications.

For a free copy of the catalog,

Write 39 on Reader Service Card

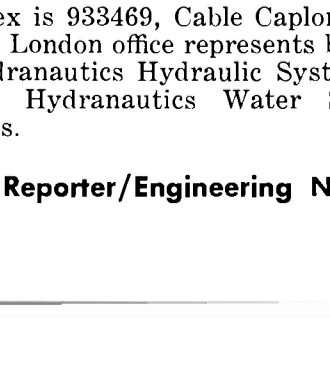
Sudoimport Orders Jacket-Launching Barge From Blohm & Voss AG

Representatives of Blohm & Voss AG, Hamburg, West Germany, signed a contract in Moscow recently with the Soviet foreign trade organization, Sudoimport, for the design, construction, and delivery of a special service vessel for the USSR's Ministry of the Gas Industry.

The vessel is a 26,800-dwt jacket-launching barge capable of transporting jackets up to 18,000 tons for offshore platforms from the building yard to locations in the Caspian Sea, and then lower the jacket on site under controlled conditions.

The barge will be 163 meters long, by 45 meters wide, and 12 meters deep (about 535 feet by 148 feet by 39 feet). Delivery is scheduled for mid-1983. This is the second order Blohm & Voss has received from the USSR. Previously the company delivered the crane ship Aserbajdshan, with a lifting capacity of 2,500 tons, also for use in the Caspian Sea.

St. Louis Ship Names Richard D. Riter To New Quality Assurance Post



Richard D. Riter

The appointment of **Richard D. Riter** to fill the newly created position of quality assurance manager at St. Louis Ship was announced by **Edward Renshaw,** president.

Mr. **Riter** was the Department of Energy's Naval Reactors Representative at Norfolk Naval Shipyard for the past seven years. Mr. **Riter** was also at Newport News Shipbuilding on the staff of the Naval Reactors Office for 11 years. Prior to that time, he had a successful 21-year career in the U.S. Navy, going from seaman recruit to lieutenant.

The quality assurance manager will develop and manage a total quality assurance program at St. Louis Ship, Paducah Marine Ways and Caruthersville Shipyard, which comprise the Shipyard Group of Pott Industries Inc.

Hydranautics Relocates London Office

Hydranautics International, Goleta, Calif., recently moved its engineering and sales office in London to Balfour House, 590 Uxbridge Road, Hayes, Middlesex, UB4 ORY, England. Telephone number is 01-573-3681. Telex is 933469, Cable Caplon G. The London office represents both Hydranautics Hydraulic Systems and Hydranautics Water Systems.

Mid-Coast Delivers The Clemente Guillen

Mid-Coast Marine, Inc. of Coos Bay, Ore., announced the recent delivery of a 72-foot twin-screw towboat, Clemente Guillen (shown above), to Roca Fosforica Mexicana SA de CV of Mexico City. The vessel was designed by David J. Seymour, Ltd., naval architect of San Francisco, Calif. Home port will be Lopez Mateos, B.C.S.

The vessel was delivered under its own power to the Magdellena Bay area of Baja California. Features of the towboat are twin-screw 12v-149 Detroit Diesel engines rated at 700 hp, each driving four-blade Coolidge propellers in Mid-Coast Marine nozzles. The reverse gears are Twin Disc MG 520 (5:1 ratio). The bollard pull of the vessel exceeds 41,500 pounds and draws 6 feet 9 inches of water. The nozzles offer added protection to the marine life that uses the Boca de Soledad for shelter.

The duties of the towboat will be shifting construction equipment in the bay along with pushing 6,000-dwt barges loaded with phosphate to the export terminal in Magdellena Bay. The pilothouse vision is superb with eye level being 32 feet above the waterline. Top speed for the vessel is 12.2 knots and averaged 10.4 knots in the run down the coast to its home port.

This is the third vessel delivered to the Mexican firm from Mid-Coast Marine within the past year.

MarAd Grants Subsidy For Construction Of Blue Line's Landing Craft

The Maritime Subsidy Board has approved Japan as the representative foreign shipbuilding center for the calculation of the differential between U.S. and foreign costs for the subsidized construction of a twin-screw, steel landing craft ordered by Blue Lines, Inc.

The estimated foreign cost of building the 83-foot, diesel-powered vessel was set at $364,000.

The vessel will be built by Atlantic Marine, Inc., Jacksonville, Fla., and is intended for operation in the Caribbean. The craft will be certified to carry combustible and flammable liquids in Department of Transportation approved trucks.

Literature Available On Satellite Services For Ships And Offshore Rigs

INMARSAT, the international maritime satellite organization, has published a four-color folder containing a dozen fact sheets with detailed information on the services it provides worldwide.

Established by international Convention on July 16, 1979, the 34-member organization will, in early 1982, assume the rendering of services now provided by the U.S.-owned MARISAT system.

The literature describes the INMARSAT organization and COMSAT's relationship to it; the INMARSAT system; coast earth stations and network coordination services; ship earth stations, and services and charges. Examples of its capabilities included are: 56 KBPS seismic transmission service; well log data transmission; offshore early warning system; modern marine management via INMARSAT. Also included is an overview of the MARISAT market and a listing of ships and offshore facilities currently equipped with MARISAT terminals.

For a free copy of the INMARSAT literature,

Write 47 on Reader Service Card

A Look At Economical Methods For

Fuel Conservation And Upgrading Of The Shipboard Boiler Plant

A.L. Christenson*

Most operators are not aware that just by operating their boilers within their design criteria, they can save 1.8 percent of their fuel costs. This fact was established by one owner over six years ago. Vessels operating under the U.S. flag today were, for the most part, designed and built in an era long before the present fuel crunch. They were, therefore, not designed with high fuel efficiency in mind. However, even on these vessels fuel rates can be improved and in some cases surpass their original designated rates.

To accomplish this, a thorough survey of the boiler is required, paying particular attention to refractory; burner throats, angles and dimensions; water sides to insure that no deposits are present; furnace-side-pressure parts are clean; external surface of steam air heaters for non-fouling; calibration and replacement of instrumentation; overhaul of soot-blowing equipment, and tightness check of all valves.

Combustion controls should be serviced and adjusted. This is an item that is frequently ignored and it should not be as excess air accounts for most of the heat loss up the stack.

Good instrumentation to monitor air and flue-gas pressure drops and stack temperature should be installed. Stack temperature is extremely important as it is an indication of your boiler efficiency. Most of the older vessels do not have flue-gas analyzing equipment. Therefore, an electronic flue-gas analyzer, preferably with chart recorders, should be installed. This expense is justified by savings experienced from better surveillance and control.

Most of the older plants were designed for 15 percent excess air operational. This can be improved at a relatively low cost. In some cases, it is possible to reduce it to 10 percent with a corresponding improvement in performance and maintenance. Fuel quality is most often blamed for boiler fouling problems. However, fuel quality is only one of the contributing factors. There are many documented cases where chronic boiler fouling problems have been eliminated by improving combustion, without any change in fuel quality.

Minimizing combustion air saves fuel, not only by increasing flame temperature, but also by minimizing boiler-tube fouling and refractory slagging. In addition, the decrease in dioxide content retards the corrosion rate of furnace-side metals. The evidence on boilers operating at 5 percent excess air as compared to 15 percent excess air is quite dramatic. Units on 5 percent have operated for periods of two years with no water washing of fireside as compared to a cleaning cycle of three to six months for units on 15 percent.

With fuel conservation and reduced fuel cost in mind, many owners have decided to run their vessels at reduced speed. The boiler designers should be consulted and their recommendations solicited prior to attempting this type of operation. Operation of the boilers at reduced loads can lead to accelerated deterioration and an increase in maintenance costs. If it is anticipated that reduced load operation is to be a long-term condition, it may be possible to modify the boilers and auxiliary equipment for optimum performance at that load. Should a reduction of 50 percent be in consideration, it is recommended that one boiler operation be utilized.

Modifications

In upgrading a boiler plant, we must recognize that more emphasis is being put on the refineries to obtain higher quantities of distillates from a given barrel of crude, resulting in a degradation of the bunker fuels used by the majority of our merchant vessels. It has long been recognized that sulfur, vanadium and sodium are the chief constituents of a fuel oil which contribute to operation difficulties. Special consideration must, therefore, be given to compensate for these degraded fuels. One area of major concern is the economizer.

High sulfur fuels tend to promote dewpoint corrosion and fouling in the economizer tube-bank area. This problem has been dealt with in the past and material design changes have been made to aid in combating the "cold-end corrosion."

If the feedwater heating arrangement is such that the feed temperature is below 280°F, provision should be made to raise it to this level to aid in avoiding dewpoint corrosion. In the economizer, the use of "Corten" or low-alloy steel fins and low-alloy tubes in place of carbon steel will give improved dewpoint corrosion resistance. By using cast-iron gill rings in the top 20 percent of the economizer, the problem of sulfuric acid attack may be minimized.

In this continuing battle of the fuel rate, we have recently examined the possibilities of upgrading an existing 24,000-shp tanker plant. This plant has the standard three feedwater heater economizer cycle operating at 850 psig, 930 F superheat. By adding equipment and incorporating features shown on the heat balance in Figure 1, it is estimated that a 4 percent savings in the fuel rate can be achieved.

These changes encompass the addition of a secondary economizer, one 1-p heater, one h-p heater, replacing steam air ejectors with vacuum pumps, modifying feed-pump turbines to operate on superheated steam, added extraction from h-p turbine, cascading drain system and increasing superheat temperature from 930 F to 950 F. If the vessel were on a long run, such as Persian Gulf to the U.S. or Europe, an attached generator could be included at minimal expense, resulting in an additional savings of 1 percent in the fuel rate.

Another method of plant upgrading presently under consideration is that of modifying an existing nonreheat to reheat. A complete change out of boilers does not appear to be economically feasible. However, adding a reheater section to the existing plant does.

One approach to this concept is to install the reheater in a refractory lined box that is separately fired by a combuster, as is done in separately fired heat recovery applications. This arrangement simplifies reheat control requirements and does not interfere with the normal operating functions of the main boilers. It is estimated that this modification would result in a 4 percent fuel savings on a plant of approximately 30,000 shp.

Coal Firing

In today's environment no upgrading evaluation would be complete unless consideration was given to coal firing. By the year 2000 it is projected that fuel-oil costs will be exorbitant. One owner's representative recently made the statement that the biggest problem facing U.S.-flag carriers is that of the costly conversion from steam turbine to diesel-powered ships. If the projections as indicated are correct, it would appear that he is heading in the wrong direction. The conversions he speaks of are reported to be

(continued on page 48)

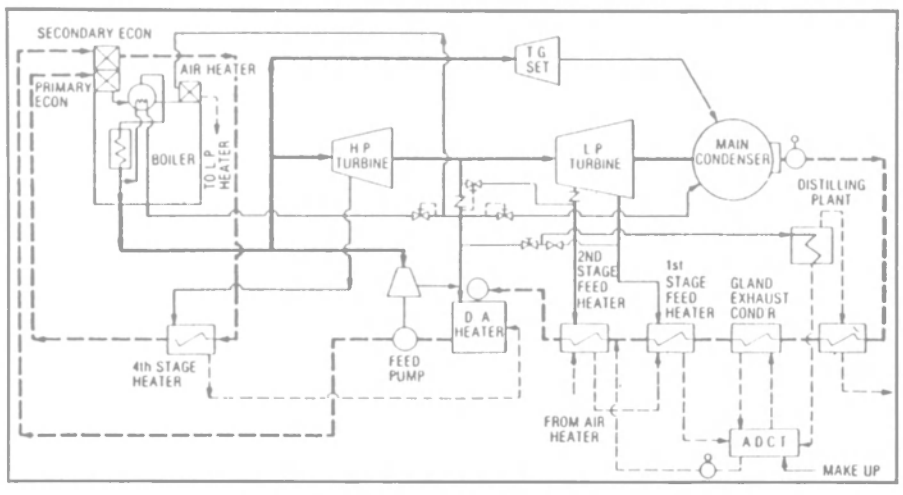


Figure 1 — Heat balance of upgraded 24,000-shp tanker plant showing added equipment and other features to provide a 4 percent savings in the fuel rate.

*Mr. **Christenson**, vice president-sales and service, Foster Wheeler Boiler Corporation, presented the paper condensed here before a recent meeting of The Society of Marine Port Engineers, New York.

At McDermott Shipyards, Quality Is An Obligation Not An Option

McDermott Shipyards build to only one standard — first class. Our tugboats, such as the 105' Rebecca P. for Poling Transportation Co., our supply boats, posted drill barges, and jack-ups share special construction procedures, features, and techniques which result in the highest quality vessel.

We use computerized lofting and computer produced engineering drawings to direct multihead numerical control burning machines, a method noted for its speed and accuracy. Module components produced in this manner allow the most economical use of production manhours over the course of the construction contract.

Then we combine expert hand craftsmanship with our advanced tooling, quality control inspection and computer monitored construction schedules to build the highest quality ships and rigs and deliver them on time.

McDermott Shipyards
a McDermott division

1010 Common Street, New Orleans, LA 70112 (504) 587-5762 • P.O. Box 588 Amelia, LA 70340 (504) 631-2561 • P.O. Box 128 New Iberia, LA 70560 (318) 365-8121 • P.O. Box 2249 Gulfport, MS 39503 (601) 863-5691

Upgrading Of The Shipboard Boiler Plant

(continued from page 46)

in the area of 15 to 20 million dollars per ship. This is a sizable investment when you are looking for a quick payback on your outlay. I believe the advantages of converting to coal, even when you consider that reboilering is required, far outweigh the diesel conversion approach.

On coal firing, history points out that this is not something which is new; we are simply improving on existing technology. Major improvements have been made in the last 30 years in metallurgy, design and manufacturing techniques used in modern marine boilers, as well as the fuel-burning fuel-handling systems employed.

The coal-fired marine plant will utilize a readily available and economical stoker coal. Present day prices, February 1981, place stoker grade coal at $2.201 per million Btu versus oil at $5.20 per million Btu. The prices based on dollars per million Btu equate to $212 per ton for bunker "C" oil and $55 per ton for stoker-grade coal.

The economics, based on a 20,000-shp plant operating 300 days a year at rated power, show that the oil-fired plant consumes 173.75 million Btu per hour. This translates into $6,505,200 per year. The coal-fired plant would consume 180.00 million Btu per hour, which represents an annual cost of $2,851,200. Thus, the fuel cost savings by using coal would be $3,654,000 per year.

The added cost for the coal-fired plant with coal bunkers, fuel and ash handling equipment is estimated at $3,000,000 per ship above that of an oil-fired steamship. Obviously, any investment that can be written off in less than four years is well worth investigating.

The classification of coal under consideration for marine application today is stoker-grade bituminous, which is still available in numerous areas of the United States and the world for marine bunkers.

A present-day land coal-fired boiler generally consists of a combustion system which burns pulverized coal in suspension in the furnace, or stoker-fired units which burn coal on a fixed or moving grate system. Coal-fired utility boilers generally use pulverized coal systems simply because a stoker cannot accommodate the huge quantities of fuel consumed.

Coal pulverizers and the burner system are generally designed for a specific coal. This does not present a problem for land-based plants. Marine bunkering coals, however, will vary in specifications and may not be acceptable to a pulverizer system as originally designed.

We, therefore, feel that a stoker-fired boiler is the best present-day solution for coal firing aboard a vessel. The stoker will more readily accept changes in the fuel specification which are likely to occur in marine coal bunkers.

The main shipboard coal bunkers proposed are of the hopper-bottom type. Transportation of the coal from the extraction point at the main bunker to the day bunker can employ one of two basic systems available. One system is mechanical and the second is a pneumatic transport system. The mechanical coal feed system configuration can vary depending on the machinery space layout.

It is estimated that a reboilering conversion to coal-firing units would be in the five to seven million dollar range. This includes removal of existing boilers, installation of all new equipment, plus an insert into the hull structure for coal bunkers.

In conclusion, in a world which is subject to liquid fuel prices rising uncontrollably and with rapid degradation of liquid fuel, coal is a viable alternate for shipboard application.

For free copies of the full paper,

Write 99 on Reader Service Card

National Marine Completes Ill. The yard will operate under t e Nati nal Marine name and full-service facilities for barge and towboat repairs. Its yard at the needs of customers in all parts of the world. E.E. Able-

OUR PRODUCTS ARE MADE TO ORDER FOR DIFFICULT CONSTRUCTION SITES.

Today's increasingly large and complex oil platforms typically require many types of highly specialized, reliable lifting equipment — not only for on-site erection, but also for efficient operation once they're in place.

At Amhoist, we have the experience and engineering expertise to design and build lifting equipment for every type of energy project. Our standard marine cranes come in capacities of 30 to 3,000 tons; larger sizes can be custom-engineered for specific applications. Current Amhoist products range from huge barge- and ship-mounted revolvers to the new Sea Horse pedestal crane for materials handling aboard offshore oil rigs.

Lucker Pullers — our revolutionary linear hydraulic "cable grip" devices — can be used singly or combined in different ways for an endless variety of lifting, pulling, and positioning tasks. Because they're low in profile and pack a lot of power into an efficient package, they can be used in applications that would be impractical for bulkier mechanical winches and windlasses.

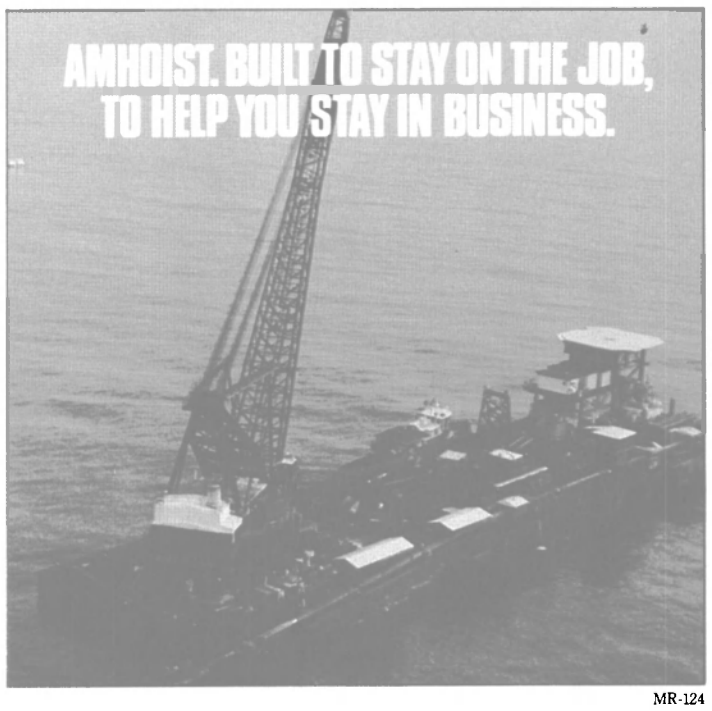
We also manufacture American stiffleg derricks in many configurations and sizes for use on barges, ships, platforms, or gantries. They offer excellent cost efficiency and adaptability with low maintenance.

Find out more about the many.made-to-order lifting products from a company with generations of experience on land and sea. Contact our Marine/Energy Division for the full story.

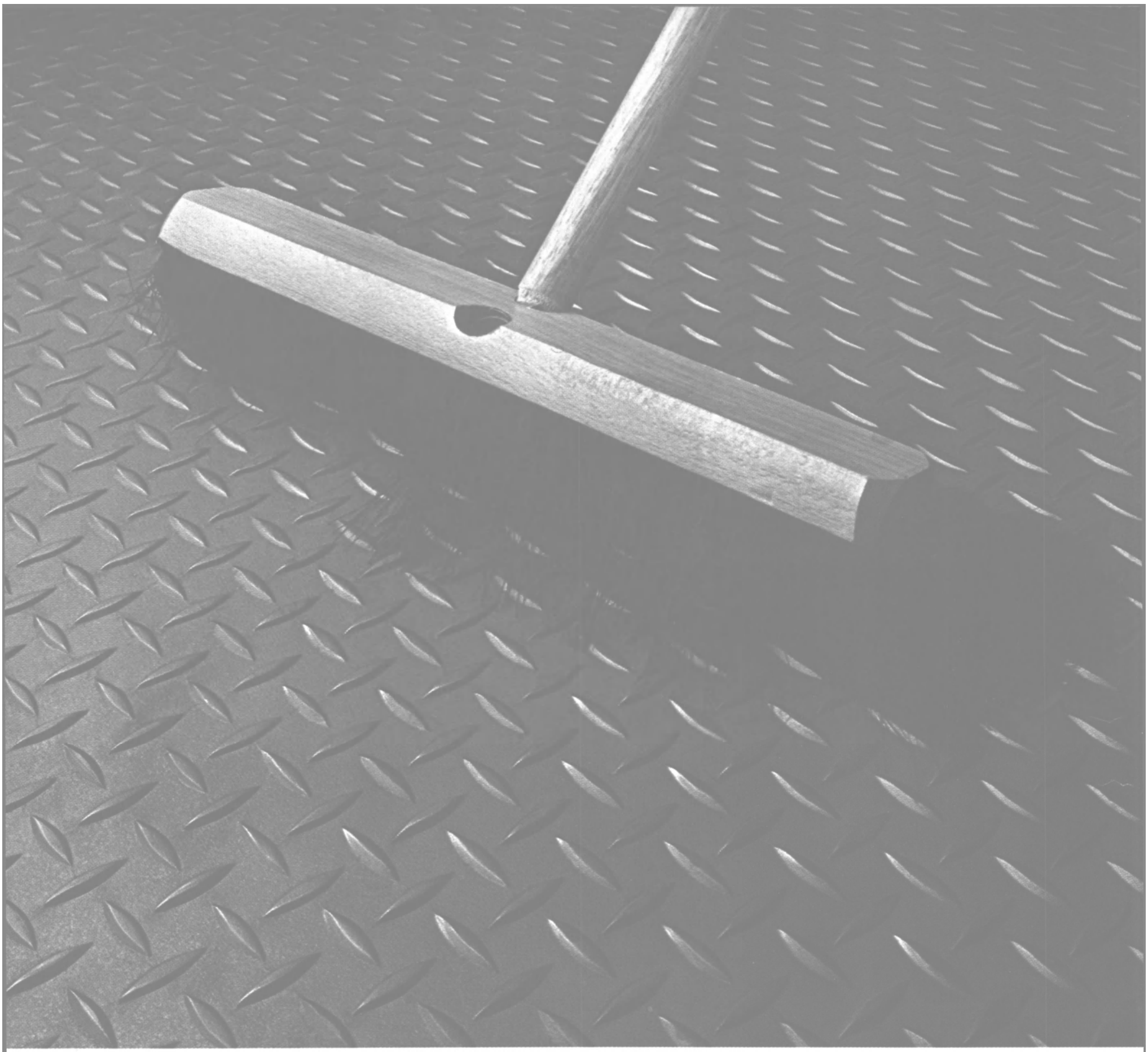
American Hoist & Derrick Co., St. Paul, MN 55107
An equal opportunity employer

MARINE/ENERGY

amhoist



MR-124



People are cleaning up on us.

Every time they give us the brush-off they're money ahead on the maintenance game. That's because what they're brushing off is our Sure-Foot™ safety plate.

Its sharp, skid-resistant pattern is remarkably easy to maintain. Whether you brush it, hose it or mop it, the surface comes clean quickly and inexpensively.

But that's not all. Sure-Foot™ safety plate provides the strength and support needed for heavy-traffic stairs, ramps, walkways, docks, work tables, truck floors, tailgates and kick-plates.

Ask your Steel Service Center about the many sizes or thicknesses available. Or contact your nearest Lukens sales office for further information.

LUKENS STEEL

Lukens Steel
Coatesville, PA 19320

Write **458** on Reader Service Card

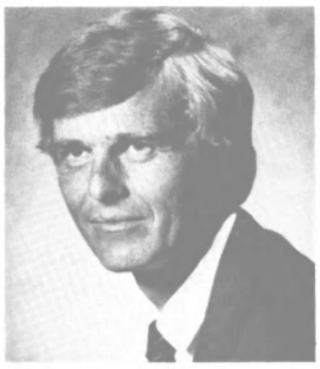
James Carey Sworn In As A Maritime Commissioner

Alan Green Jr., Chairman of the Federal Maritime Commission, has announced that **James Joseph Carey** was sworn in recently as a Federal Maritime Commissioner. Mr. **Carey** will complete a term expiring June 30, 1985.

The new commissioner served as a senior business executive with Telemedia, Inc., Chicago. Mr. **Carey** also has an extensive background with the Naval Reserve.

Simrad Headquarters Moved To Seattle, Name Ulven VP

Simrad, Inc., a major manufacturer and distributor of marine electronic equipment, has relocated its corporate headquarters from Armonk, N.Y., to Seattle, Wash.



Trond Ulven

Trond Ulven, newly appointed vice president and general manager of Simrad, responsible for all domestic sales and services, cited "distance between us and our Pacific Basin suppliers" as the primary reason for the recent coast-to-coast move. Simrad's East Coast office will continue in operation as a field office, Mr. **Ulven** said.

Simrad, Inc. has grown from a single employee in the mid-60s to its current domestic operations of 16 persons. Simrad's offices are located at 2215 Northwest Market Street, Seattle, Wash. 98107.

Krupp Marine Will Distribute Tyne Products —Literature Available

John A. Gerrets, general manager of Krupp Marine International Limited, a New Orleans-based ship repair firm and custom designer and builder of marine-related products, announced that it has been designated sole U.S. distributor for Tyne Gangway Limited's extensive line of aluminum accommodation ladders, gangways, and other shipboard required aluminum products. Krupp Marine International Ltd. has been engaged in the ship repair service business for almost 40 years and offers full above-the-waterline ship repair service.

For literature on Tyne aluminum products,

Write 20 on Reader Service Card

HUDSHIP To Build Two 176-Ft. Supply Vessels

Wendle W. Huddleston, president and chief executive officer of Hudson Shipbuilders, Inc. (HUDSHIP), recently announced that a contract has been signed for the construction of two 176-foot offshore supply vessels for an unnamed client.

The two vessels will be delivered from the Pascagoula, Miss., yard during the second quarter of 1982 and the third quarter of 1982.

The vessels will measure 176 feet by 40 feet by 14 feet 6 inches and will be powered by twin Detroit Diesel 16V149 engines driving through Twin Disc Model MG 540 reverse/reduction gears rated at 6:1 ratio. Auxiliary power will be provided by twin 75-kw Delco E-7344 gensets powered by Detroit Diesel 6-71N engines. Maneuverability will be enhanced by a Schottel S152L 300-hp bowthruster driven by a GM 8V-71 engine.

Tank capacities have been designed to accommodate 61,000 gallons of fuel oil, 20,000 gallons of potable water, and 233,000 gallons of ballast water.

The crew accommodations are designed to provide quarters for 19 people in six staterooms.

National Marine Completes Acquisition Of Riverways Ship Repair Facilities

National Marine Service Incorporated of St. Louis, Mo., has announced completion of its acquisition of the assets of Riverway Co.'s ship repair facilities north of Lock and Dam 26 at Grafton, Ill. The yard will operate under the National Marine name and will complement services provided at the National Marine Hartford, Ill., yard located on the south side of Lock 26, some 22 miles to the south. Drydocking as well as fleeting and shifting services will be available at both locations.

The National Marine Service shipyard at Hartford, Ill., offers full-service facilities for barge and towboat repairs. Its yard at Harvey, La., in addition to repairing inland vessels, also provides full-service facilities for deeper-draft ocean tugs and offshore supply vessels. The diesel engine repair services of National Marine are widely recognized as among the most expert available anywhere. Repair crews service the needs of customers in all parts of the world. **E.E. Ahlemeyer,** president of the shipyard division, is in charge of all these activities.

National Marine Service, one of the NICOR basic energy companies, is a leading supplier of liquid bulk transportation services on the Mississippi River and Gulf Coast.

York Names Rogers Sales Manager For Gulf Coast Region

Ray H. Rogers

Ray H. Rogers has been named manager of a new marine sales office that Borg-Warner Corporation's York-International marine, military and government unit is opening in Houston, Texas.

He will be responsible for sales and customer application support of air-conditioning and refrigeration systems for Navy, barge, and commercial ships in the Gulf Coast region.

Mr. **Rogers,** a registered professional engineer since 1966, has 15 years' experience in selling engineered equipment, including industrial instruments and control systems.

Chevron Develops New Delo 1000 Marine Oil —Literature Available

An eight-page color brochure detailing the Chevron International Oil Company's new Delo 1000 marine engine oil has been published by the company.

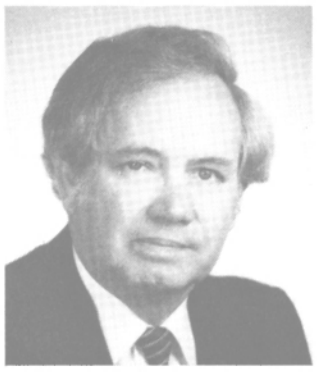
The oil, an alkaline detergent/dispersant cylinder and crankcase oil, is designed to meet the most severe requirements of medium-speed, trunk piston diesel engines operating with distillate fuel or black marine diesel oil with sulphur contents up to 1.5 percent.

The brochure contains information on oxidation and thermal stability, rust and corrosion protection, and field and laboratory tests. A typical properties chart is included as well as photographs of test results.

The Delo 1000 oil was developed by Chevron's Central Laboratories, Rotterdam, Netherlands, and at Chevron's Research Co., Richmond, Calif. For further information and a free copy of the brochure,

Write 18 on Reader Service Card

Halter Names Lensmyer Marketing Manager For The Inland Waterways



Frank G. Lensmyer Jr.

Frank G. Lensmyer Jr. has joined Halter Marine, Inc., New Orleans, La., as marketing manager for the inland waterways.

The announcement was made recently by **James A. Cobb,** Halter vice president-sales, who said the new position was created to utilize Mr. **Lensmyer's** extensive knowledge of marine operations in the inland waterways and harbors.

Prior to joining Halter, Mr. **Lensmyer** had been president of SSI, Inc., Houma, La., a steering systems, monitoring, and radar company which he founded in 1962. He also formed and was president of F&L Industrial Electronics, New Orleans, from 1950 to 1962.

Pump Mount PTOs Described In New Catalog From Twin Disc

An eight-page catalog (333-M) illustrated with photographs, schematic drawings, and containing technical specifications and dimensions on their line of pump-mount power take-offs has been published recently by Twin Disc, Inc., Racine, Wis.

The units are designed for use with engines of from 50 to 800 hp and are available in designs of from one to four pump mount versions. Special fabrication to a customer's requirements, as well as a package of standard options are also described.

For a free copy of catalog 333-M,

Write 42 on Reader Service Card

Marine Fabricators Deliver First Of Two Supply Boats For Arrow Marine

Arrow Marine, Inc., Houston, Texas, has taken delivery of thc M/V Arapaho Arrow, the first of two 120-foot supply vessels being built by Marine Fabricators, Inc., of Green Cove Springs, Fla.

The Arapaho is fully certified by the U.S.C.G. and carries an A.B.S. International Load Line certificate. The vessel is powered by two Detroit Diesel 16V92 engines developing 1,200 continuous horsepower. The two 40-kw Delco auxiliaries are powered by Detroit Diesel 471 series engines. The vessel is equipped with a full complement of electronics: radar, Loran C, depth finder, 12-channel single-band radio, and a 56-channel VHF.

Some special features which are not typical to this length vessel are its deck capacity and accommodations. The Arapaho is certified to sleep 17 industrial personnel in bunks, in addition to the crew. The 22-foot by 60-foot deck area will hold 120 tons of cargo.

Lyons Named Controller Of Ryan-Walsh Stevedoring

James M. Lyons was recently named controller of Ryan-Walsh Stevedoring Company, Inc., Mobile, Ala., and its subsidiaries. Mr. **Lyons** will be located in the Ryan-Walsh Center in Mobile where the company maintains its corporate headquarters. Mr. **Lyons** will handle financial and accounting aspects of the company's stevedoring, terminal, and related operations, and for other permanently maintained offices in Beaumont, Texas; New Orleans and Lake Providence, La.; Gulfport and Pascagoula, Miss.; Pensacola and Panama City, Fla.; and Georgetown, S.C. Mr. **Lyons** was previously vice president and controller of Mobile Infirmary and Gulf Atlantic Corp.

Armco's New Wire Rope Offers Rotation Resistance —Literature Available

Armco's Union Wire Rope has announced a new wire rope that offers, for the first time, rotation resistance without sacrificing strength or crushing resistance. The new product overcomes the deficiencies that have been inherent in other rotation-resistant ropes.

It is engineered for use on overhead cranes with a single hoisting line and in other applications that require minimal block spinning while retaining a high load capacity level. Union Wire Rope's new product is a 10 by 19 rope, consisting of 10 outer strands wrapped around a specially designed core. Each strand is of a 19 Seale construction. A patent is pending on the design.

Rotation resistance, or low torque characteristics, is possible because the 10 by 19 rope's outer strands are laid in an opposite direction to that of the core. The rope's special core is said to provide more steel area than the ones used in other rotation-resistant rope designs. It offers better resistance to drum crushing, and improved outer strand support. The result is extended service life on cranes using multilayer winding.

For more information and free literature on the new rope,

Write 28 on Reader Service Card

Greenwood Appointed Vice President-Marine At Pickands Mather

John O. Greenwood

Pickands Mather & Co., Cleveland, Ohio, recently announced the appointment of **John O. Greenwood** as vice president-marine. Mr. **Greenwood** assumed his new duties following the retirement of **David A. Groh**.

Mr. **Greenwood** joined Pickands Mather in 1970 as an administrative assistant in the Marine Department. He was named assistant to the marine vice president in 1975 and assistant vice president-marine in 1980.

Mr. **Greenwood** is recognized as one of the leading authorities on the history of Great Lakes shipping. He has written many books dealing with the Lakes trade, including the annually published "Greenwood's Guide to Great Lakes Shipping" and the multivolumed series "Namesakes of the Lakes."

New Instrument Permits NDT Of Fiberglass Hulls —Literature Available

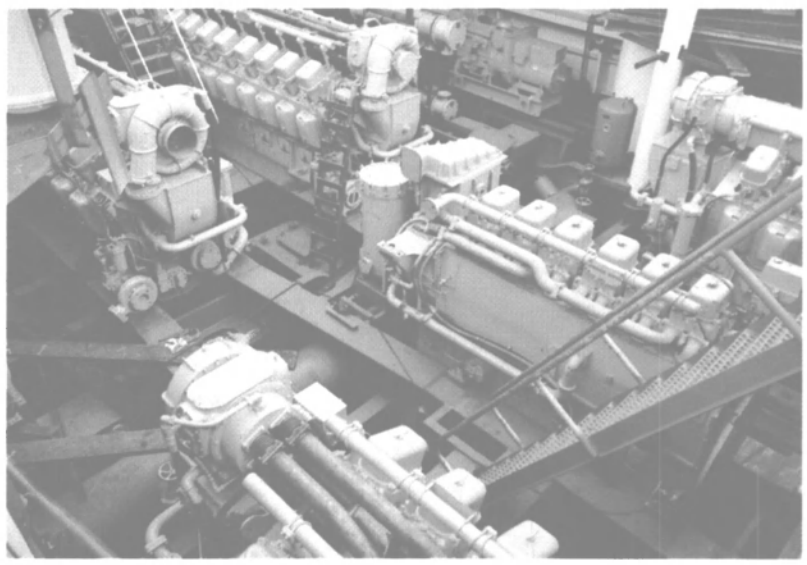
A new ultrasonic gage that measures the thickness of fiberglass walls usually to within 0.01 inch has been developed by Krautkramer-Branson, Inc., Stratford, Conn.

The instrument, known as Model 202F, permits the nondestructive thickness measurement of fiberglass products such as boat hulls, pipes, storage tanks, and pressure vessels. The instrument makes its measurements from only one surface of the materials.

Because the instrument works by bouncing sound waves off surfaces or discontinuities in the material, it instantly reveals flaws such as delaminations and air bubbles. The 15-ounce instrument gives precise readings on most fiberglass compositions at thicknesses up to three and one-half inches.

For more information,

Write 21 on Reader Service Card

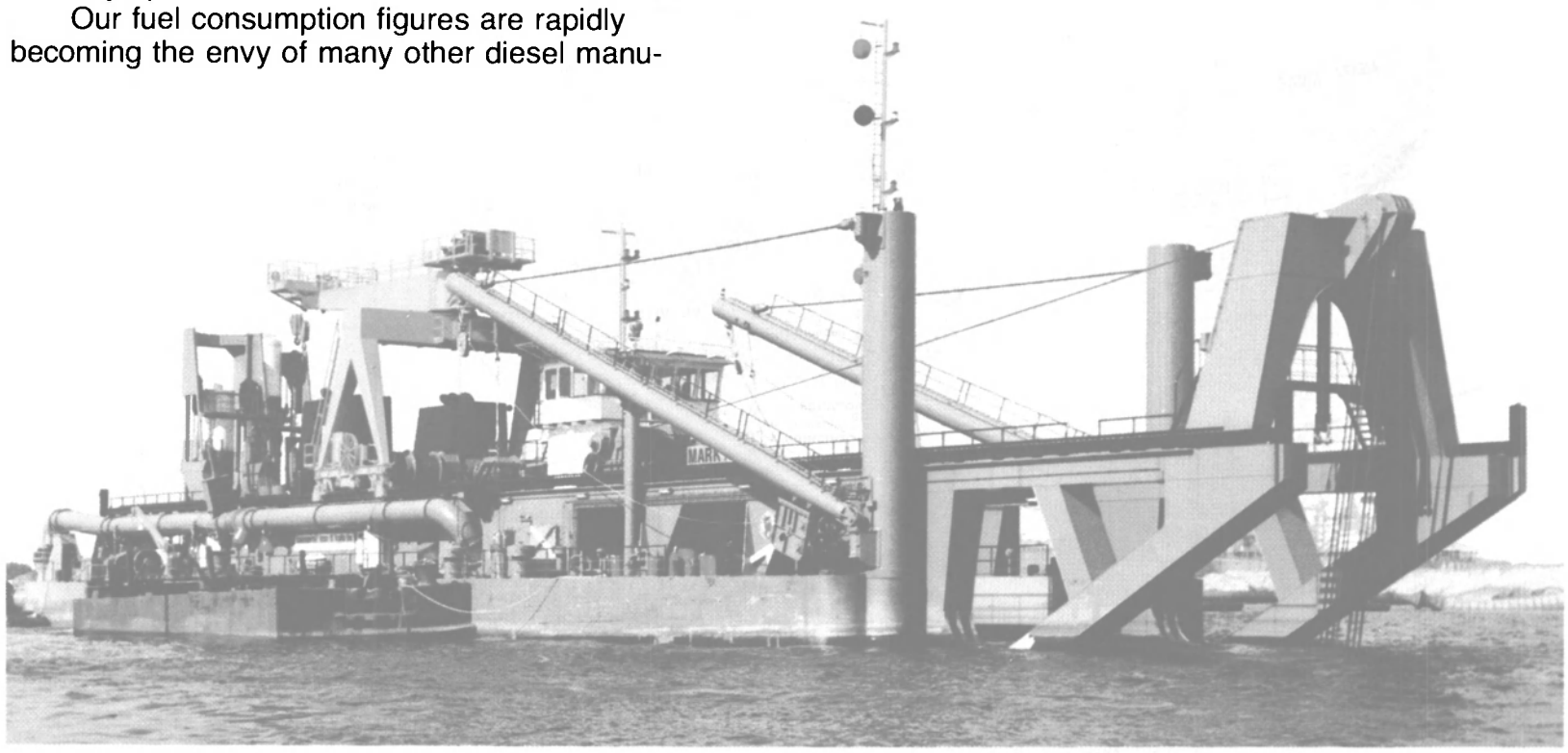


Owners or operators of vessels operating on the inland waterways or oceans of the world rely on their power plants for three important reasons: Performance, Reliability, and Economy. ALCO diesels are outstanding in all three categories.

Why? Because coordinated design in the ALCO diesel engine's working parts assures long life operation and drastically lessens usual diesel-maintenance problems. Interchangeable parts and identical construction methods, among the basic models, lower the engine's cost. Modifications can be inexpensively added to the basic engine, adapting it to any specific service.

Our fuel consumption figures are rapidly becoming the envy of many other diesel manufacturers and users. But we are not stopping here—further improvements in many areas are in the works. including dual fuel and spark-ignited gas engines.

All of this is the result of years of diesel experience—a joint total of three and a half centries within the GEC Diesel Group of which ALCO is a part. Tie this to ALCO's continuing investment program at it's Auburn, New York manufacturing facility to incorporate the most modern features of production technology in the manufacture of diesel engines, and you will readily recognize the dedication ALCO has to it's present and future customers.



Whether your diesel needs are for marine propulsion, power generating systems, standby power units or pumping, contact your ALCO representative before you order your next diesel. Or write ALCO Power Inc., 100 Orchard St., Auburn, New York 13021, U.S.A or phone 315/253-3241. Telex: 937-300.

ALCO®

A World of Power to Power the World™

New Pall Filter Medium For Hydraulic/Lube —Literature Available

Pall Industrial Hydraulics Corporation, Glen Cove, N.Y., has added a new grade of filter medium to its Ultipore® line of filter elements for hydraulic and lube oil service. Designated "US" grade, the new medium has an absolute removal rating of 12 micrometers and a β_{10} rating of 25 as measured by the ISO Multipass Test (ISO 4572).

It has been designed to optimize element life while still providing protection against abrasive wear in hydraulic and lube systems. The new "US" grade elements can withstand a differential pressure of 150 psid. They demonstrate superior cold start performance and low clean pressure drop, and are compatible with all common oil, water-base, or synthetic fluids.

Filter elements incorporating the new medium are available for the full range of Pall high and low pressure filters. This includes 6,000 psi filters with flows to 375 gpm, as well as low pressure filters, including spin-ons, Ultivoir® in-tank return filters, 8300 high flow (to 600 tpm) filters, and the recently introduced Rotolok™ series of 600 psi filters.

For more information,

Write 30 on Reader Service Card

Name Thomas Shideler General Manager Of ITT Barton Instruments

Thomas J. Shideler

The appointment of **Thomas J. Shideler** as general manager of ITT Barton Instruments, City of Industry, Calif., has been announced by **Don Evarts,** president of the Barton Division. Mr. **Shideler** joins Barton from Beckman Instruments in Fullerton, Calif., where he served as general manager of the Helipot Division from 1980-81.

ITT Barton is a major producer of high-technology instruments for control and monitoring of fluids, including their pressure, differential pressure, level, flow, temperature, density, and composition.

Omnipure Produces Five Waste Treatment Units —Literature Available

Literature describing five models of waste water treatment units is available from Omnipure, a division of Sigma-Chapman, Inc., Houston, Texas.

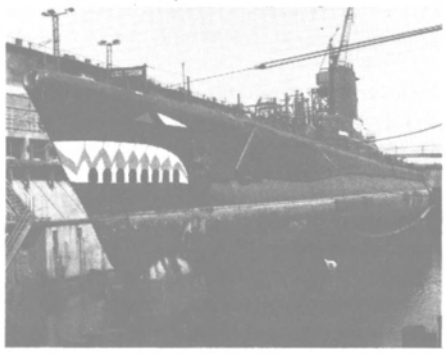
Omnipure uses an electrocatalytic waste treatment process for treating black and gray waters when seawater is available. The units use no consumables, require no additives, and have no onboard storage. The units are built for installation on offshore platforms, support vessels, and oceangoing vessels. The units can operate intermittently in freshwater with the installation of a chamber and addition of agricultural grade salt lick periodically.

The pre-assembled lightweight units come in five sizes that serve crews from 13 to 300 persons.

The Omnipure four-color brochure includes flow diagrams and design information. For a free copy,

Write 43 on Reader Service Card

◄ Write **111** on Reader Service Card



"FISH" OUT OF WATER — The USS Torsk submarine, built at the Portsmouth Naval Shipyard in New Hampshire in 1944 and the last submarine to fire a torpedo and sink a ship during World War II, gets a routine drydocking for testing, cleaning, and painting at Bethlehem Steel Corporation's Baltimore repair yard. The Torsk now is a tourist attraction in Baltimore's Inner Harbor and drew 96,000 visitors in 1980.

Title XI Loan Increase Approved By MarAd For Chemical Carrier

The Maritime Administration has increased its Title XI loan guarantee commitment on the Chilbar, a chemical carrier owned by Chilbar Shipping Co., from $24,244,000 to $27,148,000.

The recently announced increase was a result of the inclusion of the cost of the vessel's stern section in the computations of the ship's actual cost. The stern section of the Chilbar was taken from a ship called Eagle Traveler. Its integration into the design of the otherwise new chemical tanker was not discussed in Chilbar's original Title XI guarantee application.

The Chilbar was built by Newport News Shipbuilding Co., Newport News, Va., and is currently in service. The vessel's Title XI guarantee covers 87½ percent of its $31,027,162 actual cost.

Announce Appointment Of Two Vice Presidents At Japan Line (U.S.A.) Ltd.

M. Okubo, president of Japan Line (U.S.A.) Ltd., recently announced the appointment of **Leo E. Kowalski** as executive vice president and managing director, and **Laurence L. Bear** as senior vice president of the corporation.

Mr. **Kowalski** played a role in the line's initial organization and development in 1970 and its reorganization in 1980. Mr. **Bear** joined Japan Line as sales manager in 1970, and since 1979 has served as vice president and general manager. He is also a director of the line and is a director and secretary-treasurer of the Los Angeles Container Terminal Co., Inc.

Japan Line (U.S.A.) Ltd. is a wholly owned subsidiary of Japan Line, Ltd., Tokyo, and serves as general agent throughout the U.S. and Canada.

New High-Pressure Pump Has Speeds To 20,000 RPM —Literature Available

Literature has been published on a new Worthington high-speed pump with helical gearing for quiet dependable operations that can reach speeds up to 20,000 rpm.

Recommended for high-pressure applications, the horizontal high-speed pumps have capacities to 300 gpm and heads to 4,000 feet. They were developed for refinery, chemical and petrochemical applications such as hydrocarbon charge and injection services.

Horizontal configuration of the pumps eliminates the need for vertical motor supports and avoids excessive bearing loading inherent in vertical models. Field maintenance is easier and any driver can be used. The pump design features a closed, angled-vane impeller for stable head characteristics and high efficiencies. The gear box is fan-cooled, eliminating the need for water cooling in most applications.

For additional information and literature on the Worthington high-speed pump,

Write 46 on Reader Service Card

ships draft between 2.65 and 4.38 meters

Burton Delivers 224-Ft. Seiner, Second Of Seven For Van Camp

Burton Shipyard, Inc., Port Arthur, Texas, recently delivered the 224-foot tuna vessel Patrician. The steel-hulled tuna purse seiner is the second of a seven-vessel contract awarded to Burton by Van Camp Sea Food Co., a division of Ralston Purina Co., and is jointly owned by Van Camp and Capt. **Manuel Vargas**. The purse seiner will operate primarily with the Pacific fleet, docked in San Diego, Calif., and will fish the Pacific Ocean for skipjack and yellowfin tuna.

The Patrician measures 42 feet wide, with an 18-foot draft, and cruises at 16 knots. The vessel is designed to operate with a crew of 21, and is capable of carrying a 1,200 short-ton payload of frozen tuna.

The Patrician will travel through the Panama Canal and into the Pacific, fishing the eastern Pacific waters before being introduced to the San Diego tuna fishing community.

EMD-powered Patrician shown on sea trials.

The new tuna seiner is propelled by a turbocharged EMD marine diesel engine developing 3,600 shp at 900 rpm. The 20-cylinder engine drives a 132-inch-diameter, five-blade stainless-steel propeller, built by Avondale, through a Falk 5.033:1 reduction/reversing gear. Shaft speed development is rated at 179 rpm. Auxiliary power for the vessel is provided by three Caterpillar D-353 TA diesels with 300-kw Kato brushless generators. The ship's bow thruster is a Bird Johnson model 10/35/FP with direct Caterpillar drive.

A passive stabilizer has been incorporated into the hull structure and was engineered by John J. McMullen Associates. Fishing gear and hydraulic equipment are by Marco and include a model WS444 purse seine winch and the Puretic power block model B56-61990-185. A Whaley model B-102-H hydraulic ring stripper is also provided.

The ammonia systems utilize Vilter components which were subcontracted by Refrigeration Systems of New Orleans, La.

Navigational aid and communications equipment, provided and installed by Marine Electric of San Diego, Calif., consists of a Magnavox 1102 satnav receiver, Furuno FRJ-100 and DRA-1064 radars, FE812 depth sounder, FDK-245 ADF and scanning sonar. Other nav/com gear includes Sperry MK 37 gyrocompasses, gyropilot, Furuno weather recorder model FAX 143, and a broad assortment of radio communications equipment.

A helicopter rides on the pad located on the wheelhouse top. A private stateroom is provided for the pilot and his mechanic, who also have a workroom on the boat deck.

Five outboard chase boats are stored on both the boat deck and the upper deck. The diesel powered skiffs were purchased from Mauricio & Sons of San Diego.

The Patrician is also fitted with a Red Fox model 750M biological treatment sanitation system.

The vessel is equipped to stay at sea for as long as three months at a time before bringing her payload of tuna back to San Diego.

Burton expects delivery of the third tuna vessel, the Deolinda, to be in early 1982. Delivery of the seventh boat will be accomplished in 1983.

Second Wind-Assisted Diesel Propelled Ship Building In Japan

A second coastal tanker designed for wind-assisted diesel propulsion will be delivered soon by Imamura Shipbuilding, Kure, Japan, to Aitoku Co., owner of the first such commercial sailing vessel.

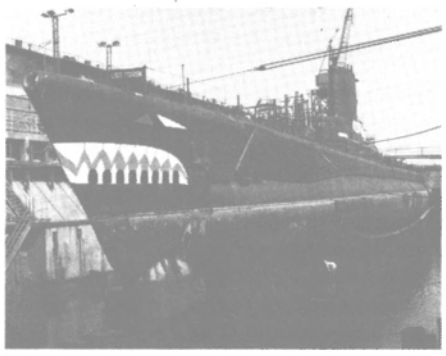
The second ship, the Aitoku Maru, will take Japanese sail research one stage further and differs in one crucial respect from her predecessor. The first ship, Shin Aitoku Maru, was built with her two masts and sails in place, and performance results could not be compared with any reference data for that ship.

The Aitoku Maru has been built initially as a normal power-driven vessel so that full data on the bare vessel can be obtained before the sails are fitted later.

In hull design, the Aitoku Maru is similar to Shin Aitoku Maru. Propulsion machinery, hower, will be a Daihatsu medium-speed 60SMA-32F diesel with reduction gear rather than the earlier ship's derated and slow-speed Hanshin diesel engine.

Other changes are a different arrangement of internal hull divisions and a slightly smaller area for the sails when these are eventually fitted.

As in the earlier ship, Aitoku Maru will



"FISH" OUT OF WATER — The USS Torsk submarine, built at the Portsmouth Naval Shipyard in New Hampshire in 1944 and the last submarine to fire a torpedo and sink a ship during World War II, gets a routine drydocking for testing, cleaning, and painting at Bethlehem Steel Corporation's Baltimore repair yard. The Torsk now is a tourist attraction in Baltimore's Inner Harbor and drew 96,000 visitors in 1980.

Title XI Loan Increase Approved By MarAd For Chemical Carrier

The Maritime Administration has increased its Title XI loan guarantee commitment on the Chilbar, a chemical carrier owned by Chilbar Shipping Co., from $24,244,000 to $27,148,000.

The recently announced increase was a result of the inclusion of the cost of the vessel's stern section in the computations of the ship's actual cost. The stern section of the Chilbar was taken from a ship called Eagle Traveler. Its integration into the design of the otherwise new chemical tanker was not discussed in Chilbar's original Title XI guarantee application.

The Chilbar was built by Newport News Shipbuilding Co., Newport News, Va., and is currently in service. The vessel's Title XI guarantee covers 87½ percent of its $31,027,162 actual cost.

Announce Appointment Of Two Vice Presidents At Japan Line (U.S.A.) Ltd.

M. Okubo, president of Japan Line (U.S.A.) Ltd., recently announced the appointment of **Leo E. Kowalski** as executive vice president and managing director, and **Laurence L. Bear** as senior vice president of the corporation.

Mr. **Kowalski** played a role in the line's initial organization and development in 1970 and its reorganization in 1980. Mr. **Bear** joined Japan Line as sales manager in 1970, and since 1979 has served as vice president and general manager. He is also a director of the line and is a director and secretary-treasurer of the Los Angeles Container Terminal Co., Inc.

Japan Line (U.S.A.) Ltd. is a wholly owned subsidiary of Japan Line, Ltd., Tokyo, and serves as general agent throughout the U.S. and Canada.

New High-Pressure Pump Has Speeds To 20,000 RPM —Literature Available

Literature has been published on a new Worthington high-speed pump with helical gearing for quiet dependable operations that can reach speeds up to 20,000 rpm.

Recommended for high-pressure applications, the horizontal high-speed pumps have capacities to 300 gpm and heads to 4,000 feet. They were developed for refinery, chemical and petrochemical applications such as hydrocarbon charge and injection services.

Horizontal configuration of the pumps eliminates the need for vertical motor supports and avoids excessive bearing loading inherent in vertical models. Field maintenance is easier and any driver can be used. The pump design features a closed, angled-vane impeller for stable head characteristics and high efficiencies. The gear box is fan-cooled, eliminating the need for water cooling in most applications.

For additional information and literature on the Worthington high-speed pump,

Write 46 on Reader Service Card

Burton Delivers 224-Ft. Seiner, Second Of Seven For Van Camp

Burton Shipyard, Inc., Port Arthur, Texas, recently delivered the 224-foot tuna vessel Patrician. The steel-hulled tuna purse seiner is the second of a seven-vessel contract awarded to Burton by Van Camp Sea Food Co., a division of Ralston Purina Co., and is jointly owned by Van Camp and Capt. Manuel Vargas. The purse seiner will operate primarily with the Pacific fleet, docked in San Diego, Calif., and will fish the Pacific Ocean for skipjack and yellowfin tuna.

The Patrician measures 42 feet wide, with an 18-foot draft, and cruises at 16 knots. The vessel is designed to operate with a crew of 21, and is capable of carrying a 1,200 short-ton payload of frozen tuna.

The Patrician will travel through the Panama Canal and into the Pacific, fishing the eastern Pacific waters before being introduced to the San Diego tuna fishing community.

EMD-powered Patrician shown on sea trials.

The new tuna seiner is propelled by a turbocharged EMD marine diesel engine developing 3,600 shp at 900 rpm. The 20-cylinder engine drives a 132-inch-diameter, five-blade stainless-steel propeller, built by Avondale, through a Falk 5.033:1 reduction/reversing gear. Shaft speed development is rated at 179 rpm. Auxiliary power for the vessel is provided by three Caterpillar D-353 TA diesels with 300-kw Kato brushless generators. The ship's bow thruster is a Bird Johnson model 10/35/FP with direct Caterpillar drive.

A passive stabilizer has been incorporated into the hull structure and was engineered by John J. McMullen Associates. Fishing gear and hydraulic equipment are by Marco and include a model WS444 purse seine winch and the Puretic power block model B56-61990-185. A Whaley model B-102-H hydraulic ring stripper is also provided.

The ammonia systems utilize Vilter components which were subcontracted by Refrigeration Systems of New Orleans, La.

Navigational aid and communications equipment, provided and installed by Marine Electric of San Diego, Calif., consists of a Magnavox 1102 satnav receiver, Furuno FRJ-100 and DRA-1064 radars, FE812 depth sounder, FDK-245 ADF and scanning sonar. Other nav/com gear includes Sperry MK 37 gyrocompasses, gyropilot, Furuno weather recorder model FAX 143, and a broad assortment of radio communications equipment.

A helicopter rides on the pad located on the wheelhouse top. A private stateroom is provided for the pilot and his mechanic, who also have a workroom on the boat deck.

Five outboard chase boats are stored on both the boat deck and the upper deck. The diesel powered skiffs were purchased from Mauricio & Sons of San Diego.

The Patrician is also fitted with a Red Fox model 750M biological treatment sanitation system.

The vessel is equipped to stay at sea for as long as three months at a time before bringing her payload of tuna back to San Diego.

Burton expects delivery of the third tuna vessel, the Deolinda, to be in early 1982. Delivery of the seventh boat will be accomplished in 1983.

Second Wind-Assisted Diesel Propelled Ship Building In Japan

A second coastal tanker designed for wind-assisted diesel propulsion will be delivered soon by Imamura Shipbuilding, Kure, Japan, to Aitoku Co., owner of the first such commercial sailing vessel.

The second ship, the Aitoku Maru, will take Japanese sail research one stage further and differs in one crucial respect from her predecessor. The first ship, Shin Aitoku Maru, was built with her two masts and sails in place, and performance results could not be compared with any reference data for that ship.

The Aitoku Maru has been built initially as a normal power-driven vessel so that full data on the bare vessel can be obtained before the sails are fitted later.

In hull design, the Aitoku Maru is similar to Shin Aitoku Maru. Propulsion machinery, hower, will be a Daihatsu medium-speed 60SMA-32F diesel with reduction gear rather than the earlier ship's derated and slow-speed Hanshin diesel engine.

Other changes are a different arrangement of internal hull divisions and a slightly smaller area for the sails when these are eventually fitted.

As in the earlier ship, Aitoku Maru will have two masts with rigid sails, totaling 160 square meters when spread. The design of the first ship was based on a hoped-for 50 percent fuel saving compared with a conventionally propelled vessel of her size.

Since delivery a year ago, she has been employed on coastal services in Japan and

sea crossings to China during which extensive tests have been conducted to establish actual in-service results.

On one trial voyage of just over 330 hours, of which about 41 percent was under sail, an average speed of 11.04 knots was attained with an average engine output of 832 bhp, including electric power generation. Displacement of the 1,600-dwt vessel varied between 1,170 and 2,090 tons and the midships draft between 2.65 and 4.38 meters (9 and 14 feet). Average fuel consumption for the voyage was 129.4 liters per hour.

The thrust gained from use of sails reduces main engine output, an effect of an automatic load control computer maintaining a preset ship speed. The computer also can over-pitch the cp propeller so that the slip percentage remains constant.

An automatic computer controls the hydraulically driven sail functions, including opening, closing and trimming, to provide best results from prevailing wind conditions.

The sails on the Shin Aitoku Maru are rectangular, laminar flow-type rigid steel and canvas, 8 meters wide by 12.15 meters high.

The main engine is derated from an output of 2,000 bhp at 280 rpm to 1,600 at 250 rpm. Because of the lower engine speed a larger propeller has been used and engine fuel consumption is also helped by the option to use heavy fuel.

A shaft generator system using a variable capacity hydraulic pump is also claimed to reduce consumption of higher grade oil.

AITOKU MARU	
Length	217 ft.
Beam	35 ft.
Depth	17 ft.
Draft	16 ft.
DWT	1,600 tons
Main engine	Daihatsu 6DSMA-32F mcr 1,600 at 500 rpm
Sails	(2) rigid
Sail area	160 sq. m.

Hitachi Zosen Delivers Car Carrier Toyofuji 7

The 10,848-dwt, diesel-powered vehicle carrier Toyofuji 7 (shown above) was delivered recently to Toyofuji Kaiun Kaisha, Ltd. of Japan by Hitachi Zosen, Tokyo. The ship was built at the Setoda Shipyard of Naikai Zosen, a Hitachi affiliate.

The vessel is 178 meters long by 29 meters wide by 26.2 meters deep (approximately 584 by 95 by 86 feet), and can transport up to 4,024 passenger cars and small trucks, as well as knockdown assembly car components and freight containers.

The Toyofuji 7 is powered by a Hitachi B&W twin-bank diesel engine, type 2x8K45-GTCA, providing a service speed of 18 knots. The seventh and eighth of the ship's 12 car decks were specially designed: the aft compartments have elevator decks to load containers, while the fore compartments are used to hold cars. The ship is fitted with ramps at the stern and midships. The midship ramp is adjustable to three different heights enabling cars to exit and enter from the fifth to seventh decks.

Bayou Black Delivers All-Aluminum 'Frontier I'

Bayou Black Shipyard of Gibson, La., recently delivered one of several 42-foot all-aluminum crewboats — the Frontier I — to Frontier Marine of Morgan City, La.

The vessel has a length of 42 feet, a beam of 13 feet, and a depth midship of 6.5 feet. Fuel capacity is supplied by an independent 300-gallon tank located in the lazarette. Main propulsion of the vessel is provided by two Detroit Diesel 6-71 engines, each rated at 174 bhp at 1,800 rpm, driven through Allison model M reduction gears supplied by George Engine Co. of Morgan City.

Propellers furnished by Toups Propellers of Abbeville, La., are 28-inch by 28-inch Columbian bronze hydrosonic. Shafts are 2-inch stainless steel. Both engines are electric start with power provided by two 12-volt dc batteries. The vessel's air-conditioning power is provided by a two-cylinder John Deere 7½-kw generator.

George Engine supplied the Detroit Diesel propulsion engines for "Frontier I."

Electronic equipment consists of a Standard Horizon VHF-FM radio, and a model No. 240 Mark II Furuno radar. Engine controls are Morse and the steering system is a self-contained hydraulic type. The vessel is USCG certified to carry 16 passengers and a crew of two.

Three New Vice Presidents Named At CDI Marine Co.

Paul I. Beining, president of CDI Marine Company, Jacksonville, Fla., recently announced major changes in the organizational structure of the company.

Donald W. Jett has been promoted to executive vice president responsible for the operation of the firm's nationwide network of marine design offices. Mr. **Jett**, a member of CDI Marine management since 1974, previously served with Newport News Shipbuilding as a member of the hull structural design division engaged in both aircraft carrier and submarine design.

James C. Gibson Jr. has been promoted to vice president, southern region. His responsibility is for the technical direction and accomplishment of all engineering and design work performed in the Jacksonville, Charleston and Pascagoula offices. Mr. **Gibson** has been with CDI Marine Company since he retired from the U.S. Navy with the rank of captain.

Jimmy R. Phillips has been promoted to vice president, northern region, which includes the Boston, Groton, Philadelphia, Hampton, and Chesapeake design offices. Prior to joining CDI Marine in 1976, Mr. **Phillips** worked with Newport News Shipbuilding as a member of the machinery design division engaged in the design of submarines, cruisers and aircraft carriers.

CDI Marine Company, a major division of CDI Corporation of Philadelphia, is a supplier of naval architectural and marine engineering services to shipyards, both Navy and commercial, and to their supporting industries.

Fast Reference Tables For Marine Steel Plates Available From Armco

Marine steel plate data in tabular form is now available from Armco in a new free folder. This useful folder includes information on mechanical properties, thickness availability, chemical composition, and provides a "relative price factor" for comparison purposes. For a copy of the folder,

Write 12 on Reader Service Card

Two Lightships Ordered For Australian Waters

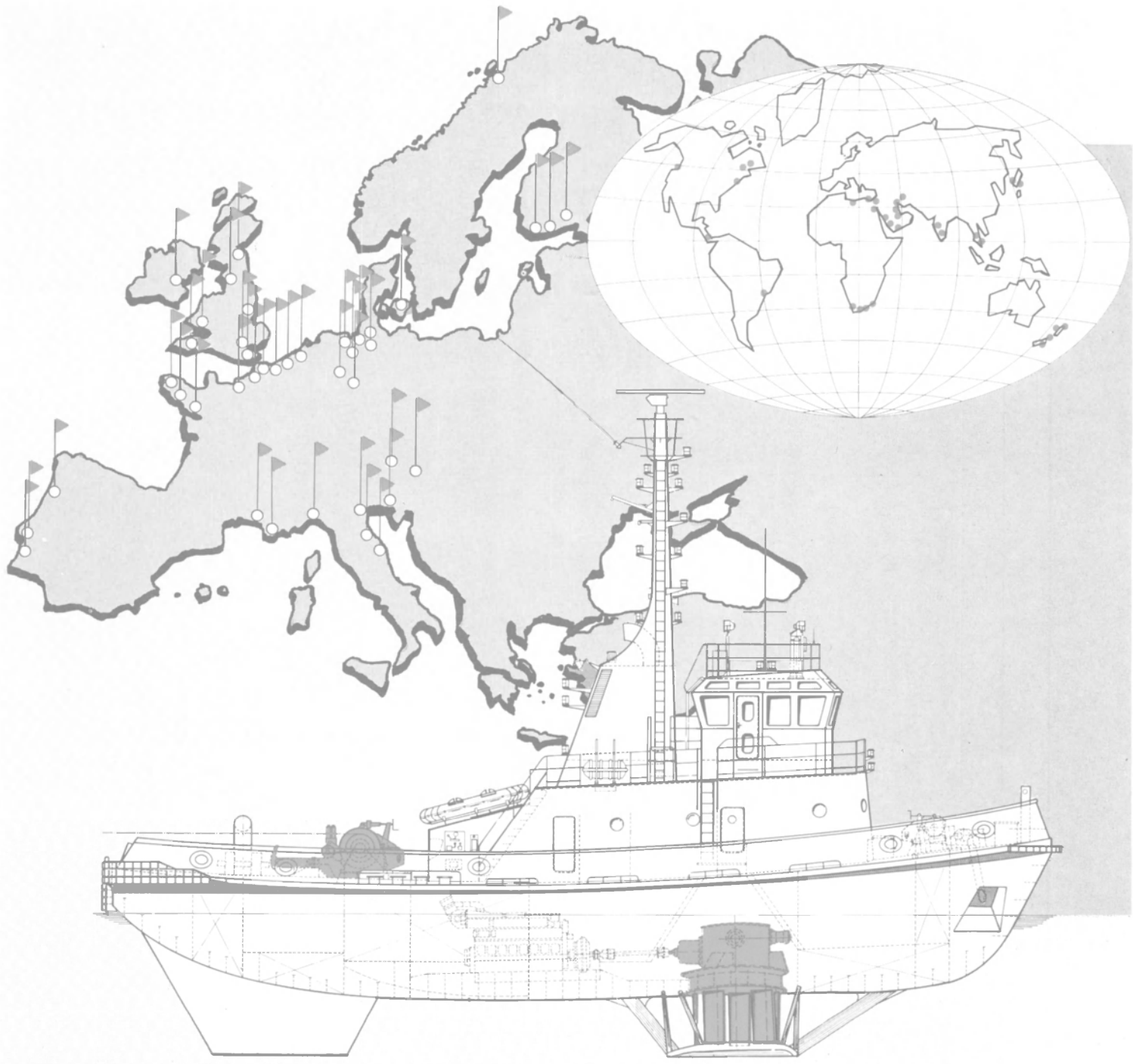
Two 23-meter (about 75-foot) long lightships are to be built at Ocean Shipyards, Fremantle, Western Australia, for the Australian Department of Transport at a cost of 2.4-million Australian dollars.

On completion, scheduled in 1982, one will be stationed at the Carpentaria Shoal, Torres Strait, and the other at Breaksea Spit at the southern end of the Great Barrier Reef. There is an option for a further two vessels for use in the Bass Strait, where a traffic separation scheme is planned.

The vessels will be built to the design of the naval architectural firm of Sir J.H. Biles & Co., Ltd., who were responsible to AGA Navigational Aids, Ltd., Brentford, England, for the lines and specification for two similarly designed vessels for the U.K.'s Trinity House. The Australian vessels will carry the same AGA 17-mile-range acetylene lighting system which will maintain the lightbeam on a horizontal plane, regardless of pitch and roll. They will also be fitted with radar responders to help location and identification by ship-borne radar.

These vessels will have the same service life of two years on station without attention. Differences in design include the addition of a diesel hydraulic windlass for mooring, no bulwarks on the foredeck for easier maintenance, and no recessed boarding ladders amidships. Stainless steel will be extensively used for ladders, rails and fittings. The hull will be painted with a chlorinated rubber system. At 22.72 meters LOA, these vessels will be about a meter longer than the AGA vessels bought by Trinity House.

Lighting equipment will be made at Brentford and supplied through AGA Products Australia Pty. Ltd., Melbourne.

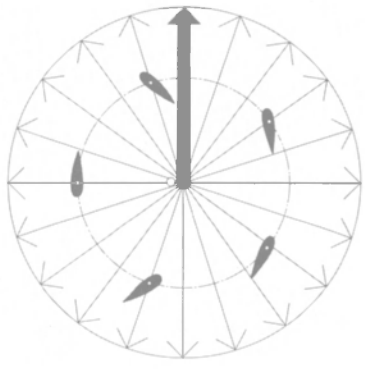


Voith Water Tractors

Technical Revolution in Ship Handling

Voith Water Tractor means:
Voith-Schneider Propellers at the fore and towing gear aft.

This conception has proved a worldwide success in many years of operation. Today, hundreds of Voith Water Tractors are a synonym for
safety
reliability
swiftness
precision
in harbour and offshore service.



St 8104

USA
Voith Schneider in America
347 Evelyn Street
Paramus, N.J. 07652

Canada
Diamond Canapower Ltd.
1122 Pioneer Road
Burlington, Ontario

VOITH

J.M. Voith GmbH
P.O. Box 1940, D-7920 Heidenheim
Tel. (0 73 21) 37-0, Tx. 714 799-0 VHD

Enough equipment to outfit a fleet was shown as displays in last year's Europort show. Officials of the 1981 exhibit anticipate a new record both in attendees and exhibitors.

EUROPORT '81

Europort '81 — the largest international maritime exhibition and conference—will be 20 years old this month. In terms of products, equipment, and technological presentations, this 20th anniversary show will be as young as tomorrow.

The exhibit will be held in Rai Halls, Amsterdam, Netherlands, on November 10 through 14, and a record number of shipping and shipbuilding executives as well as technical personnel from all over the globe are expected to attend.

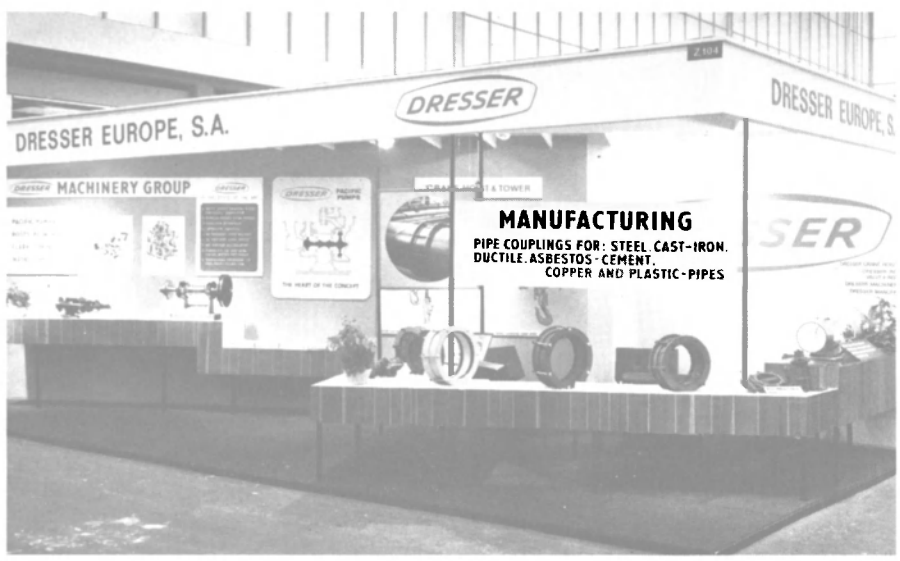
Europort has grown in stature with the years, quickly becoming one of the leading maritime events. Almost since its inception, Europort has gained a reputation as an event that is welcomed by marine executives for the opportunity it provides to acquire and exchange information on a wide range of industry developments.

The show and technical sessions cover the spectrum of the maritime industry and are not limited to any particular sector.

The Europort '81 conferences, held in conjunction with the exhibition, will for the first time include separate commercial sessions in addition to the well-

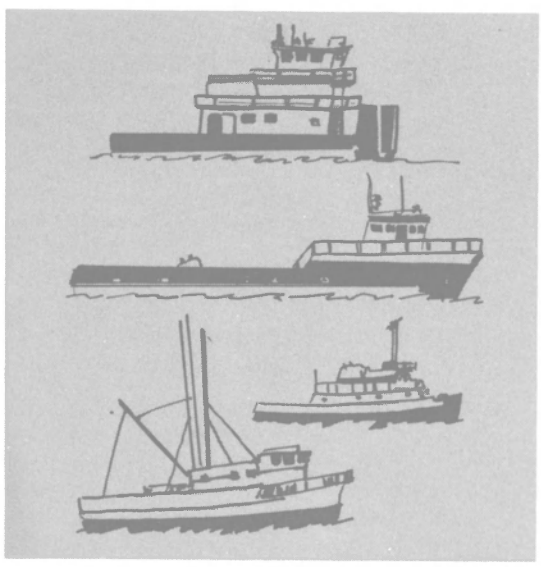
(continued on page 64)

M.A.N. — B&W Benelux B.V. was represented at last year's Europort show and will be one of the 1,500 exhibitors in 1981. M.A.N. will exhibit its Alpha Diesel complete propulsion system 6T23L-KVO (685 kw) with close-coupled gear box and built-on plate coolers.



Colorful displays of equipment and supplies will attract and inform visitors to Europort '81 in Amsterdam.

Red Fox Marine Sanitation Devices... small, inexpensive, simple to operate and trouble free.



The Standard MSD as well as the Little Fox and the Fox Pac have all the features you desire as a marine operator. A simple, complete system for every crew size certified and labeled to meet all U.S. and international regulations.

EXPERIENCE: *Over 50 years of service to the oil industry.*
SERVICE: *24 hours a day, 365 days a year, worldwide*
DEPENDABILITY: *Over 2,000 units in service worldwide*
ACCEPTABILITY: *56% of Red Fox owners operate over 10 units.*
RELIABILITY: *Red Fox units work. When service is necessary we're with you with spare parts and know how.*

redFox® INDUSTRIES, INC.

P.O. Drawer 640, New Iberia, Louisiana 70560 • Phone (318) 365-8131 • TELEX 586680
2400 Augusta Dr., Suite 260, Houston, Tx. 77057 • Phone (713) 977-7128

Europort '81

(continued from page 62)

respected technical presentations. These commercial forums will provide additional opportunities for direct interchange between suppliers of equipment and services, and representatives of their markets.

Maritime-related companies from more than 19 countries will have exhibits at the show. Represented will be firms from Austria, Belgium, Canada, Denmark, Finland, France, East Germany, West Germany, Hungary, Italy, Japan, the host country — the Netherlands, Poland, Norway, Romania, Spain, Switzerland, United Kingdom, and the United States.

For the second consecutive year, shipping on inland waterways will be a special feature. The inland waterways of the European continent are a well-integrated network that is constantly being upgraded. The network is an essential, cost-efficient part of Europe's transportation system. As Europort officials note, inland waterways are assuming greater importance worldwide; it is one sector of the maritime industry that has enjoyed steady growth during recent years.

A separate conference on inland navigation will be held on Saturday, November 14, and Europort '81 has retained a special part of the exhibit that will, for the second consecutive year, be devoted to the waterways. It will be located in Amstelhal in the Rai center.

The two other conferences planned to coincide with the exhibit have been organized by the conference division of Lloyds of London Press. The programs will be concerned with "Merchant Ships — Construction, Maintenance and Operational Problems," and "Salvage, General Average and Marine Insurance."

The merchant ship conference will be held on the morning of November 10, and in the morning and afternoon of November 11. It is sponsored by the Society of Consulting Marine Engineers and Ship Surveyors.

On November 12 and 13, the marine insurance topic will be sponsored by Ernest Robert Lindley & Sons B.V. Both of

"MERCHANT SHIPS— CONSTRUCTION, MAINTENANCE and OPERATIONAL PROBLEMS" CONFERENCE PROGRAM *

TUESDAY, NOVEMBER 10

Morning—"New buildings, Their Conception / Contract / Construction / Trials and Delivery."

9:00 a.m.—Registration.

9:30 a.m. — Chairman's opening remarks.

9:40 a.m. — Gerald Geddes: General Appraisal of Total Subject.

10:25 a.m.—Coffee

10:55 a.m.—**Norman Hart:** The Execution of a Building Program by a Consultant.

11:30 a.m.—**H.R. Selby:** The Development of Specifications in a Building Program by a Consultant.

12:00 noon—**M.R. Knight:** The Realities of Supervising a Building Program by a Consultant.

12:30 p.m.—Lunch

2:00 p.m.—His Royal Highness Prince **Claus** of the Netherlands Opens EUROPORT '81 Exhibition.

WEDNESDAY, NOVEMBER 11

Morning—"Operational Problems."

Chairman: **Gerald Geddes.**

9:30 a.m. — Chairman's opening remarks.

9:40 a.m.—**J.P. Taylor:** Sale and Purchase—M.O.A.; A. **Clapham:** On and Off Hire Surveys.

10:55 a.m.—**Andrew Sinclair:** Surveys on Behalf of Underwriters by Specialists, Consultants and Classification.

11:40 a.m. — J.A. Duncan: Maintenance And Repairs; **G. Lugg:** General Advice to Average Adjusters.

12:30 p.m.—Lunch.

Afternoon — "Techno/Legal/Arbitration/Expert Witness."

Chairman: **Andrew Sinclair.**

2:00 p.m. — Chairman's opening remarks.

2:10 p.m. — Cedric Barclay: Arbitration Generally.

2:55 p.m.—Tea.

3:25 p.m.—**Harry Miller:** Expert Witnesses.

4:10 p.m. — Forum — Chairman: **Cedric Barclay.**

A range of items from ship models to super machinery will be on display at Europort '81 as this exhibit from the previous exhibition can attest.

these conference programs will be conducted in English.

Europort '81 officials anticipate a total attendance of more than 70,000 persons at the five-day event. His Royal Highness Prince **Claus** of the Netherlands will officiate at the exhibition's opening ceremony.

"SALVAGE, GENERAL AVERAGE and MARINE INSURANCE" CONFERENCE PROGRAM *

THURSDAY, NOVEMBER 12

Morning—Chairman: **Geoffrey Hudson**, partner, Ernest Robert Lindley and Sons.

8:45 a.m.—Registration.

9:15 a.m. — Chairman's opening remarks.

9:30 a.m. — **John Van Beuningen**, managing director, Smit International Towage and Salvage Co. Keynote Address: "Is the Pen Mightier Than the Towrope?"

10:15 a.m.—**Robert Elborne**, partner, Elborne Mitchell: The C.M.I. Draft Salvage Convention—What it Proposes.

11:00 a.m.—Coffee.

11:30 a.m. — **Miss Ina Wilderboer**, partner, Van Doorne and Sjollema: The C.M.I. Draft Salvage Convention—What it Omits.

12:15 p.m.—**Terence Coghlin**, partner, Thos. R. Miller and Son (Bermuda): The Attitude of P. and I. Clubs to Present and Future Changes.

1:00 p.m.—Lunch.

Afternoon — Chairman: **Tony Wilbraham, president of the International Salvage Union.**

2:30 p.m. — **Gerald Darling**, Q.C.: Lloyd's Form of Salvage Agreement — Past, Present, and Future.

3:15 p.m.—**Geoffrey Hudson**, partner, Ernest Robert Lindley and Sons: Application to General Average—The Adjusters Headache.

4:00 p.m.—Tea.

4:30 p.m.—Speaker to be Announced. Hull and Cargo Insurers Exposure.

5:15 p.m. — Chairman's closing remarks.

FRIDAY, NOVEMBER 13

Morning—Commencing at 9:30 a.m., "New Policy Forms — Off the Peg or Tailor Made?" **M.J. Shah**, Chief, Maritime Legislation Section, Shipping Division; UNCTAD: The UNCTAD Proposals.

Speaker to be announced: Developments in the Traditional Markets.

1:00 p.m.—Lunch.

Afternoon—Commencing at 2:30 p.m., simultaneous discussion groups:

Group 1—"The Provision of Security for Salvage, General Average, Collision and Pollution Liabilities";

Group 2—"New Policy Forms—Towards a Fully Integrated Insurance Cover."

Followed by reports from each group and discussion.

(*As available at Press Time.)

EUROPORT '81 EXHIBITORS

A = Amstel Hall*
D = Doorgangshal
E = Europe Hall
N = North Hall
O = East Hall
V = Verbindingshal
W = West Hall
Z = South Hall

(*Inland Shipping exhibitors in this hall)

Company	Stand No.
ABE C.V.	E-357
A.C.B.	(NA)
Adpoint Advertising Marketing B.V.	O-755
Agam Motoren Rotterdam B.V.	O-711
Ahlemann & Schlatter	(NA)
Alfa Laval N.V.	E-346
Alinco Electrotechniek	A-686
Uitgeverij De Alk B.V.	Z-135
Allweiler Marine B.V.	O-719
Alsthom Atlantique	E-403
Amec B.V.	A-646
Amerglass B.V.	A-697
Ameron B.V.	N-804
Vereniging "De Amsterdamse Haven"	E-330
A.M.W., B.V.	V-509
Anchor Marine	(NA)
Antar-Snea	(NA)
Antwerpse Lloyd N.V.	A-612

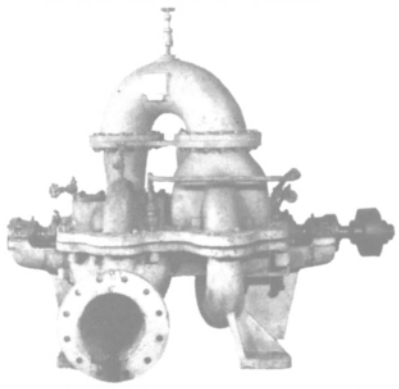
(continued on page 68)

T-2 TANKER EQUIPMENT

AVAILABILITY

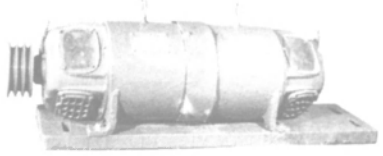
From Immediately To 5 Days

INGERSOLL-RAND 6-GT CARGO PUMP



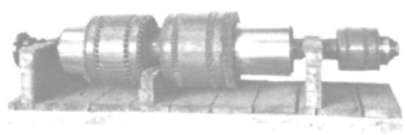
2000 GPM — 100 PSIG — Westinghouse or G.E. pump motors — 200 HP — 440/3/60

G.E. NEW STYLE AMPLIDYNE



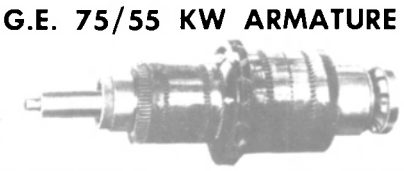
5LY148A — Type AM — Frame 605. Rebuilt with ABS. Immediate delivery.

D.C. EXCITER ARMATURE



110 KW — 32.5 KW — 5.5 KW — for Westinghouse 538 KW auxiliary generator. In stock for immediate delivery. Reconditioned — with ABS.

G.E. 75/55 KW ARMATURE



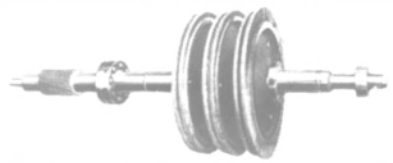
FOR 525 KW TURBO GENERATOR SETS

In stock for immediate delivery. Reconditioned — with ABS.

538 KW WESTINGHOUSE TURBINE SPINDLE

For immediate delivery. Reconditioned with ABS.

G.E. 525 KW TYPE DORV 325 M AUXILIARY TURBINE ROTOR



In stock — for immediate delivery. A.B.S.

NEW WESTINGHOUSE STATIONARY BLADING

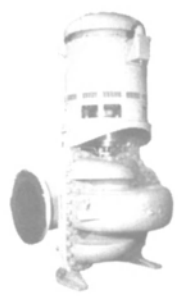
From Ex-Gulf Oil Spare Parts Stock

1 Box 2nd Stage Diaphragms — Curtis
1 Box 2nd Stage Diaphragms — Rateau

1 WESTINGHOUSE MAIN GENERATOR FORWARD PEDESTAL BEARING SEAL

From Ex-Gulf Oil Spare Parts Stock

INGERSOLL-RAND 24VCM BRONZE MAIN CIRCULATING PUMP



Reconditioned by USMP 1975 — with ABS — Immediate delivery. New Micarta and bronze inserts — new stainless steel shaft, rings, upper & lower bearings, bushings, casing and cover. Dynamically balanced. From Ex-Gulf Oil. Immediate delivery.

WESTINGHOUSE 7240 HP MAIN PROPULSION TURBINE

Unshrouded — 17th to 18th rows replaced by Westinghouse. With ABS. Immediate delivery.

WESTINGHOUSE 50 HP FORCED DRAFT FAN MOTORS

Ready for shipping in 5 days

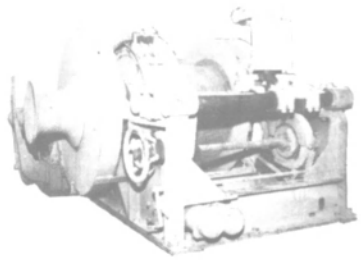
NEW INGERSOLL-RAND 3G FIRE & BUTTERWORTH PUMP

Pump only. Ready for delivery.

NEW G.E. MAIN TURBINE ROTOR

100,000 LB. ALMON JOHNSON

Constant Tension Mooring Winches



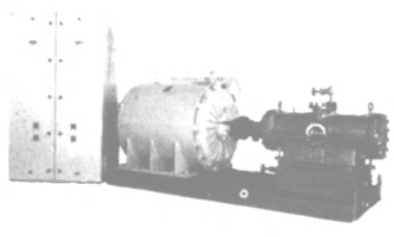
In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — ½ hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

700 G.P.M. @ 150 P.S.I.

NEW — UNUSED — EX-U.S.N.

MOTOR DRIVEN ROTARY HORIZONTAL PUMPS

WITH 4-SPEED 440/3/60 MOTOR



Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100/75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

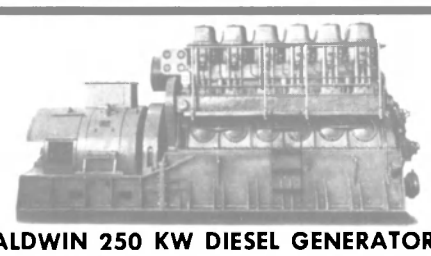
TWO 1,

VOITH-S

CYCLOIDAL CC OMNI-DIRECTIO

Can Be Located Side For Fast and Precise Mo On Axis Turns Make Them Id

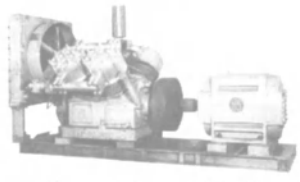
Serial Nos. NR-1783 and NR-1784. Unit size 24 blade length—2400mm blade orbit diameter. PI heavy duty motor 800/1000 HP—440/3/60—17 Mfg. by Electric Machinery Co. Complete with volts 120 A.C.—line volts 450—amps 941/3/60 HYDRAULIC COUPLING ARRANGEMENT. UNIT MOTORS FOR BRIDGE CONTROL.



BALDWIN 250 KW DIESEL GENERATOR SET

ENGINE: Model VO — 450 HP at 400 RPM — 6 cylinder — 12¾" X 15½" — 4-cycle — heat exchanger cooled — air starting. GENERATOR: 250 KW — Westinghouse — 120/240 volts DC.

MARINE SHIPBOARD AIR COMPRESSOR V-TYPE — TS-22820



160 CFM @ 125 lbs — 2-stage 870 RPM — 8X8¼X8¾ — air cooled — with intercooler. Direct-connected air compressor #2261021. MOTOR: 50 HP 440/3/60 — mfg by U.S. Motor. AIR COMPRESSOR: Mfg by Air Pumps Ltd. Excellent condition — formerly used on AT&T Vessel "Long Lines" and removed only because they needed a larger unit. Complete with inter- and after cooler. Very good condition.

KNOWN 'ROUND THE WORLD

THE BOST

313 E. BALTIMO

Main Office: (301)

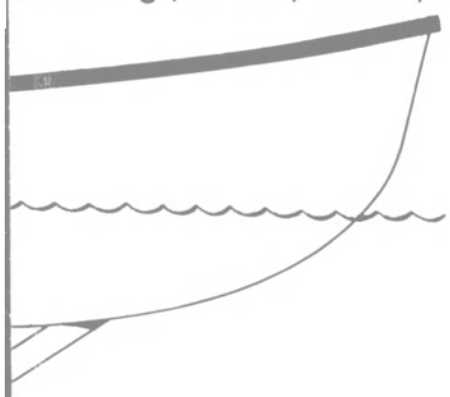
CABLE: BOSIRON—BALTIMC

)00 H. P.

CHNEIDER

NTRA-ROTATING
NAL PROPELLERS

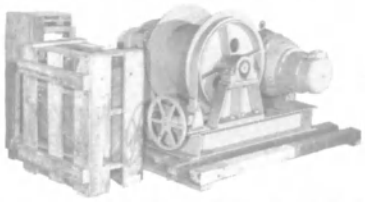
By-Side, Fore and Aft,
ement Sideways and 360°
al for Tugs, Ferries, Cranes, Etc.



E150. 6 Stainless steel blades each unit—1500mm
SENT DRIVE with Voith AD40 reduction gears and
5 RPM—squirrel cage—884 amps—frame 23153.
Cage Controls" & motor controls. Size 8—Control
OR DRIVE DIRECTLY WITH DIESEL ENGINE AND
UILT 1970. COMPLETE WITH HYDRAULIC SERVO

GENERAL PURPOSE WINCH
3500 LBS AT 200 FPM

NEW UNUSED

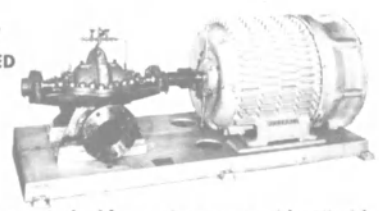


EX U.S.N.

A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB —1750 RPM—type KR—full load amps 32. Motor drives winch through Falk reduction gear. Has compressor hand brake.

NEW 5" ALL BRONZE BALDWIN-LIMA
1000 GPM 150 PSI TOTAL HEAD
CENTRIFUGAL FIRE PUMP

NEW UNUSED



EX U.S.N.

Single stage double suction type with 6" side suction & 5" side discharge. 3600 RPM—test pressure 250 PSIG. MOTOR: Reliance 125 HP 440/3/60—totally enclosed—fan cooled—Frame D-5003-S—50°C.

ON METALS CO.

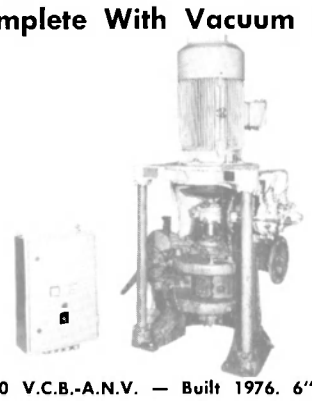
RE ST. • BALTIMORE, MD. 21202

539-1900 Marine Dept.: (301) 752-1077

RE, MD. U.S.A. TWX 710-234-1637

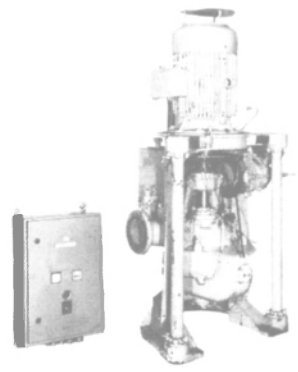
PUMPS

SELF-PRIMING FIRE & GENERAL SERVICE PUMP Complete With Vacuum Pump



Type 150 V.C.B.-A.N.V. — Built 1976. 6" x 6" — 397 GPM @ 230' head — 100 PSI — 1750 RPM — 792 GPM @ 115' head — 50 PSI — 1750 RPM or M^3/hr — 90/180 @ 70M/35M head. MOTOR: 33 KW—440 volts 3-phase 60Hz — 1800 RPM. Teikoku Machinery Works, Osaka, Japan. Condition very good. Lloyds or ABS.

SELF-PRIMING EMERGENCY FIRE PUMP



4" x 4" — 220 GPM @ 231' head (100 PSI) 1750 RPM ($50M^3$/hr. @ 70M total head). Complete with vacuum pump. MOTOR: 25KW — 1800 RPM — 440/3/60Hz. Type 125-2VCS-A-NV. Teikoku Machinery Works, Osaka, Japan.

SEND FOR PLANS. BOTH OF THESE PUMPS REMOVED FROM VERY NEW HANSA VESSEL "RABENFELS"

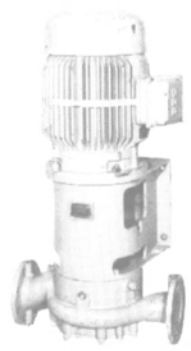
FIRE PUMPS

MADE BY K.S.B. GERMANY — (RADIAL FLOW)

265 GPM

4" x 4" — 265 GPM — 220' head (60 M^3 @ 70m) — 3520 RPM. MOTOR: 24KW — 440/3/60Hz.

396 GPM



396 GPM @ 230' head ($90M^3$ @ 70m) — 3550 RPM. MOTOR: 26KW — 440/3/60Hz.

1500 GPM GARDNER-DENVER BALLAST & CIRCULATING PUMPS

8" Suction — 6" discharge. MOTOR: 30HP — 440/3/60/1750 RPM. Ex U.S.N. LSM vessels.

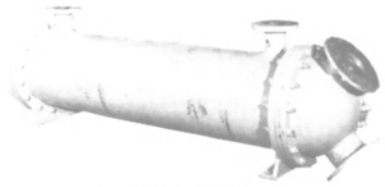
UNUSED ALCO MARINE CONDENSER

700 Sq. ft. — 2-pass — ⅝" CuNi tubes 0.049 (18BWG) — 108" effective length — 476 tubes — shell & head hydro test 30 PSI. Empty weight 6350 lbs. — 11,000 lbs. filled with water — operating 7550 lbs. — 2-Pass 9⅝" inlet & outlet — length of condenser 156" — about 78" from exhaust flange to bottom of hot well.

MATCHED PAIR
1200 HP — GM MODEL 12-278A
@ 744 RPM—WITH FALK REDUCTION GEAR

Vee type 8¾ X 10½ — 2.5:1 Falk reverse & reduction gear. Port and starboard engines — mounted on pre-fab sub-base as shown.

ROSS COOLERS



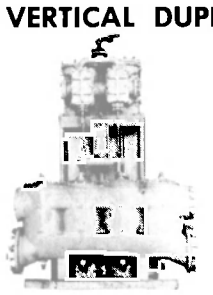
MODEL 1460

Ross Cooler Model 1460 — Type BCP — 160 sq. ft. — contains 196 ⅝" tubes #18BWG Cupro Nickel tubes — copper shell — Cupro Nickel heads & tube sheets. Tubes 5' 0-⅛" long — single pass. 3" Lube oil inlet & outlet — 5" seawater inlet & outlet. Formerly working with LST GM 1000/1200 HP engine.

MODEL 848

48" Tube length — ⅜" tubes — Cupro Nickel — 49 mils thick — 60 tubes — 39.2 sq. ft. — for LST reduction gears. 8" Diameter copper shell — 1½" Seawater inlet and outlet — single pass. 1½" Oil inlet & outlet — 125# ASA. Overall length 5' 0-¼" — distance between centers of oil inlet & outlet 3' 4⅝".

WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



1400 GPM @ 110 PSI — suction lift 11.5 ft. — steam back pressure 15 lbs. 14" Suction —10" discharge — 2½" steam — 4" exhaust. Overall width 6'8" — overall height 9'1½" — depth 3'9½". Wt. approx. 10,000 lbs.

RECONDITIONED 1980 ABS — READY TO GO

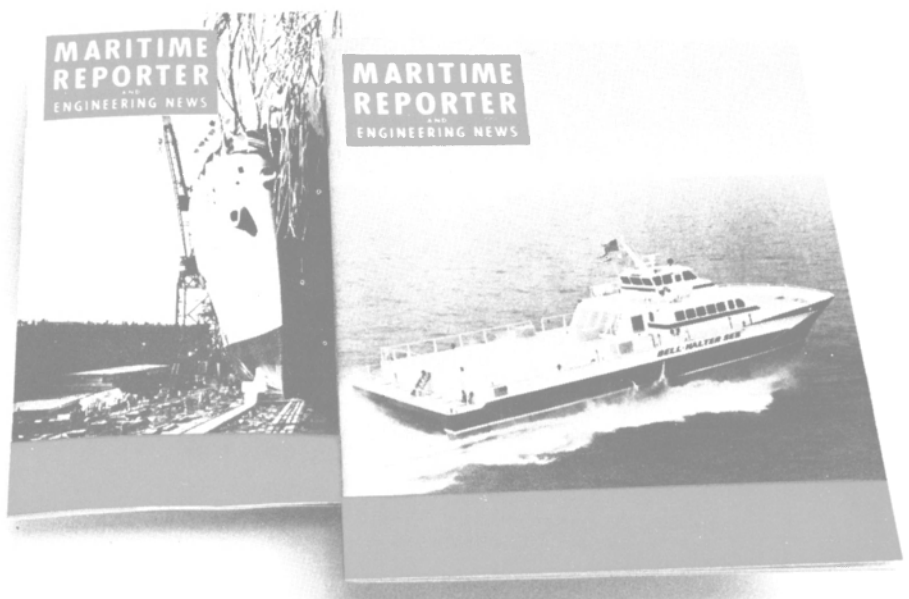
Europort '81 —Exhibitors

(continued from page 65)

Ape-Allen Limited Z-107
Aquamaster Benelux B.V. E-356
Arca-Regler GmbH ..... (NA)
Aros-Hydrauliek B.V. Z-136
Avd Advies-En Verkoopbureau Voor Drijfwerkonderdelen B.V. O-743
Amsterdam Boat Equipment A-681
Technisch Bureau Andriessen B.V. O-761
Atlas A S ..... (NA)
Baan Hofman Diesels B.V. E-374
Badotherm B.V. Z-102
Bagema B.V. A-664
Electro Industrie S. Bakker Z-110
B.V. Rubberfabriek Bakker Z-115
Becker Telecommunicatie Ind. B.V. Z-109
Technische Maatschapij Bergmann B.V. E-339
Berman Techniek A-639
Bloksma B.V. E-316
Uitgeverij C. De Boer Jr. E-323
AB Bofors Nederland E-408
Boll & Kirch Ned. B.V. .. Z-113
Bolnes Motorenfabriek B.V. A-695
Techn. Handels & Adviesbureau Boone B.V. E-344
Henri Brands B.V. E-414
Ed. Breitenbach GmbH .. N-807
Bridgestone Tire Co. Ltd. Z-122
Brinkmann & Niemeijer N.V. A-630
British Hovercraft Corp. Ltd. N-823
British Hovercraft Ltd. .. (NA)
British Marine Equipment Council Ltd. O-745-1
British Overseas Trade Board ..... (NA)
H.W. Van Broekhuizen .. A-679
Bruinhof B.V. E-392
Brusselle Marine E-303
Lucas Bryce Ltd. E-390
Fa. Buderus A-668
Burmah Castrol Nederland B.V. A-663
Boomse Metaalwerken .. N-806
B & W Alpha Diesel A/S ..... (NA)
Camrex Limited O-765
Canadian Embassy A-661
Canadian Shipbuilders & Engineering Ltd. A-662
Caterpillar Overseas S.A. E-365
B.V. Ceelen V-507
Clayton Of Belgium N.V. O-715
C.M.R. ..... (NA)
Ivg Colbachini SpA E-404
Comite Francais Des Manifestations Economiques A L'Etranger ..... (NA)
Compri-Aluminum B.V. .. A-626
Conrad Stork B.V. Z-134
Conver Ingenieur Technik GmbH ..... (NA)
Coubro & Scrutton Ltd. .. (NA)
Crepelle & Co. ..... (NA)
Croon & Co. B.V. E-319
Cummins Diesel Sales & Service BV E-380
Centromor E-384.1
Dabekausen Sanitair A-633
Daf Diesel E-317
Damen Shipyards B.V. .. E-355
Danish Export Group Association E-304 t/m-313
Datema Delfzijl B.V. Z-106
Debeg GmbH ..... (NA)
Haven Van Delfzijl Z-128
Delta-Phot Z-131
Diesel & Gas Turbine Worldwide E-412-3
Scheepswerf "De Donge" E-338
Van Duyvendijk & Van Overbeek BV E-358
DWE Deggendorfer Werft Und Eisenbau GmbH .. A-688
Van Dijk Scheepsuitrustingen BV E-385
Danfoss A/S ..... (NA)
Daempa A/S ..... (NA)
Economisch Dagblad A-602
Elceestaal B.V. A-670
Elna Elektro-Navigation- und Industrie GmbH .. (NA)
Econosto N.V. E-337
Emha Techn. Bureau B.V. A-603
Galvanisch Bedrijf Emmelot O-720
Enraf-Monius A-606
Erato B.V. E-326
Esco Aandrijvingen R.V. A-672

(continued on page 76)

THE WORLD'S MOST WANTED MARINE MAGAZINE



FOR MAXIMUM ADVERTISING RESULTS IN 1982

TDTAL CIRCUEATION...100% REQUESTED...IN WRITING BY EACH INDIVIDUAL READER

COMPARE BUYING INFLUENCE READERS FOR YOUR 1982 ADVERTISING

ONLY MARITIME DELIVERS YOUR TO THOUSANDS MOR

ONLY MR GIVES YOUR ADVERTISING THE SALES-BUILDING POWER

Sales managers agree...buying influence readers are the management, engineering and purchasing personnel...shoreside...in vessel operations, shipbuilding and naval architecture.
Non-buyers are men aboard ship, shipyard laborers, manufacturers, students, advertisers, attorneys, etc.

IMPORTANT ..After several years of a steady decline in buying influence circulation, ME/Log has changed the way they list their readers in the June 1981 circulation statement. Both buyers and non-buyers are now combined in several single groups with single totals. Because the number of buyers in these groups is now unknown, it is impossible to accurately determine ME/Log's buying influence circulation.

MARINE ENGINEERING/LOG

TOTAL WORLD WIDE IDENTIFIABLE BUYING POWER

(Non-buyers Removed)

TOTAL IDENTIFIABLE BUYERS

SHIPBUILDING & REPAIR: SHIPS, BOATS, DRILL RIGS

(Commercial, Government, Military): Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers, Works Managers, Managers, Naval Architects, Marine Engineers & Purchasing Agents **3720**

NON-BUYERS (IN RED ARE COMBINED WITH BUYERS — IMPOSSIBLE TO DETERMINE NUMBER OF BUYERS IN THESE GROUPS.

e.g., DIVERS AND SALVORS DO NOT DESIGN VESSELS.

SHIP, BOAT & BARGE OWNERS, OPERATORS, PORT AUTHORITIES, AGENTS & BROKERS

(Commercial, Government & Military)
Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers, Naval Architects, Marine Engineers & Purchasing Agents **5924**

Marine Superintendants, Port Captains, Port Engineers, Masters, Mates, Pilots, Engine Room Chiefs & Licensed Assistants ..... **?**

INDEPENDENT PROFESSIONALS:

Naval Architects, Marine Engineers, Surveyors, Consultants, Divers & Salvors ..... **?**

TOTAL IDENTIFIABLE BUYERS 9644

ME/L
43.5% IDENTIFIABLE BUYERS

IDENTIFIABLE BUYERS	9,644
BALANCE	12,542
TOTAL CIRCULATION	22,186

IDENTIFIABLE BUYERS

ME/L
3173
SUBSCRIPTIONS

6471
FREE COPIES

TOTAL
9644

FREE COPIES TO DIRECTORY NAMES—
No. 2 mails thousands of free copies, every issue, to names taken from directories of people who have not requested the magazine.

FOR MORE MARINE SALES IN '82

Source MR— June 1981 circulation statement
ME/L— June 1981 circulation statement

REPORTER ADVERTISING
E MARINE BUYERS

OF THE WORLD'S LARGEST CIRCULATION TO IDENTIFIABLE BUYERS.

Buyers must be separated from non-buyers to determine the advertising value of any magazine. This comparison shows the total circulation of both magazines to all **IDENTIFIABLE BUYERS** throughout the entire world... in all market areas... deep draft, inland waterways, coastal and offshore oil drilling. Copies to non-buyers hav been removed.

TOTAL BUYERS

MR

18,333

100% REQUESTED IN WRITING BY INDIVIDUAL READERS

TOTAL 18, 333

MARITIME REPORTER/ Engineering News

TOTAL WORLD WIDE BUYING POWER

(Non-buyers Removed)

	BUYING POWER READERS
SHIPBUILDING, BOATBUILDING, DRILL RIG BUILDING & REPAIR COMPANIES: (Commercial, U.S. Navy and U.S. Coast Guard): Companies, directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers and purchasing agents, naval architects, engineers and chief draftsman	5,595
VESSEL OPERATING COMPANIES, OCEAN, INLAND, HARBORS, OFFSHORE OIL DRILLING, PORT AUTHORITIES: (Includes oil companies involved in offshore drilling, offshore drilling contractors and crew/supply boat companies). (Owners, Agencies and brokers) Companies, directors, owners, agents, presidents, vice-presidents, managers, secretaries and treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside	10,034
PROFESSIONAL MEN: Naval architects, engineers and consultants shoreside	2,704
BUYING POWER TOTAL	**18,333**

WORLD'S MOST WANTED MARINE MAGAZINE
100% REQUESTED...IN WRITING

The quality of Maritime Reporter's circulation is unequalled, 100% currently requested, personally, in writing, by each individual reader.

MARITIME REPORTER
89% IDENTIFIABLE BUYERS

IDENTIFIABLE BUYERS	18,333
BALANCE	2,240
TOTAL CIRCULATION	20,573

ADVERTISE TO THOUSANDS MORE BUYERS IN... MARITIME REPORTER AND ENGINEERING NEWS

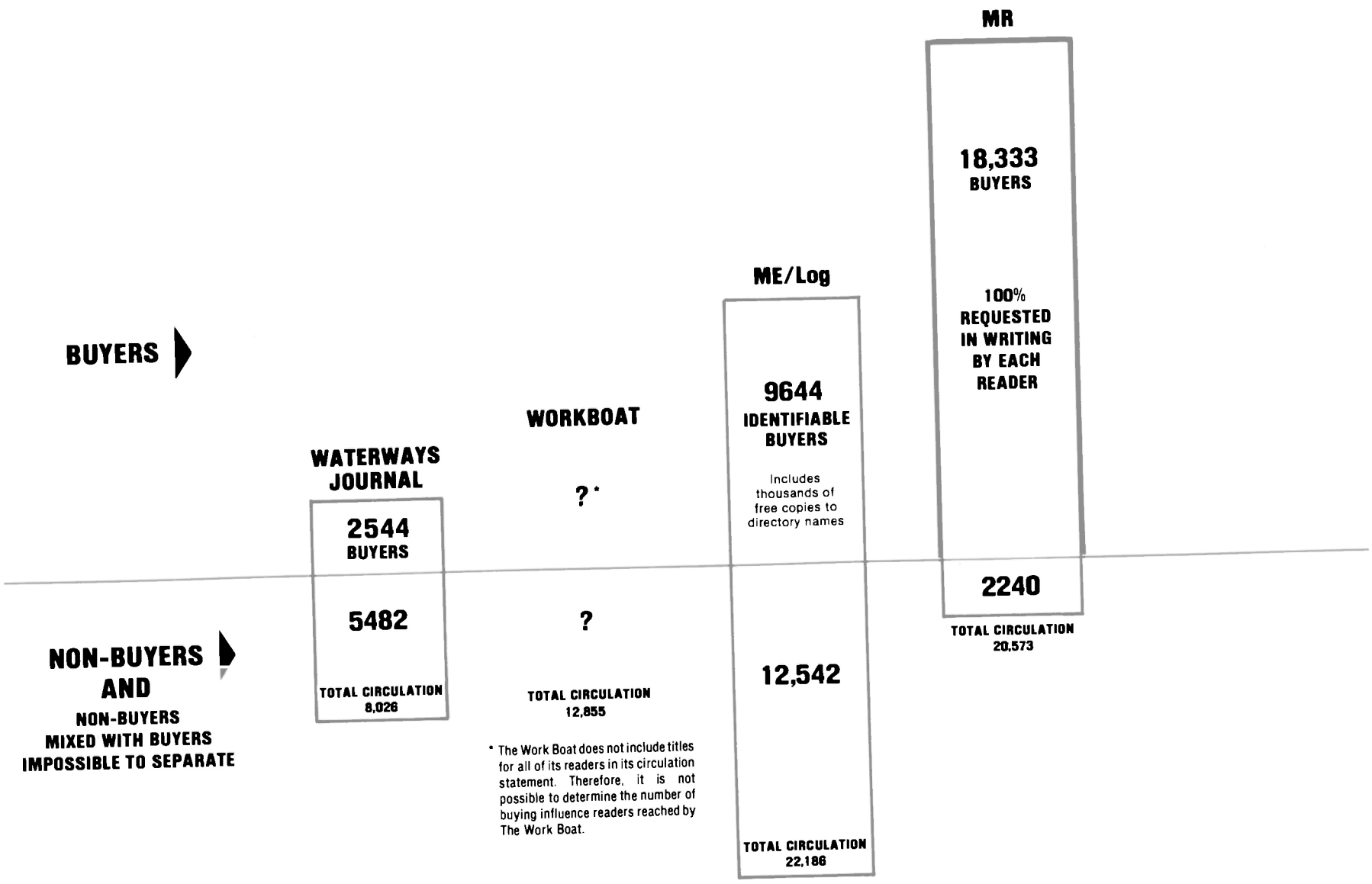
NOW...COMPARE CIRCULATION TO BUYERS OF ALL 4 MAGAZINES

MARITIME REPORTER

THE WORLD'S MOST WANTED

...BY THOUSAND MORE BUYING INFLUENCE READERS

COMPARE BUYING INFLUENCE READERS



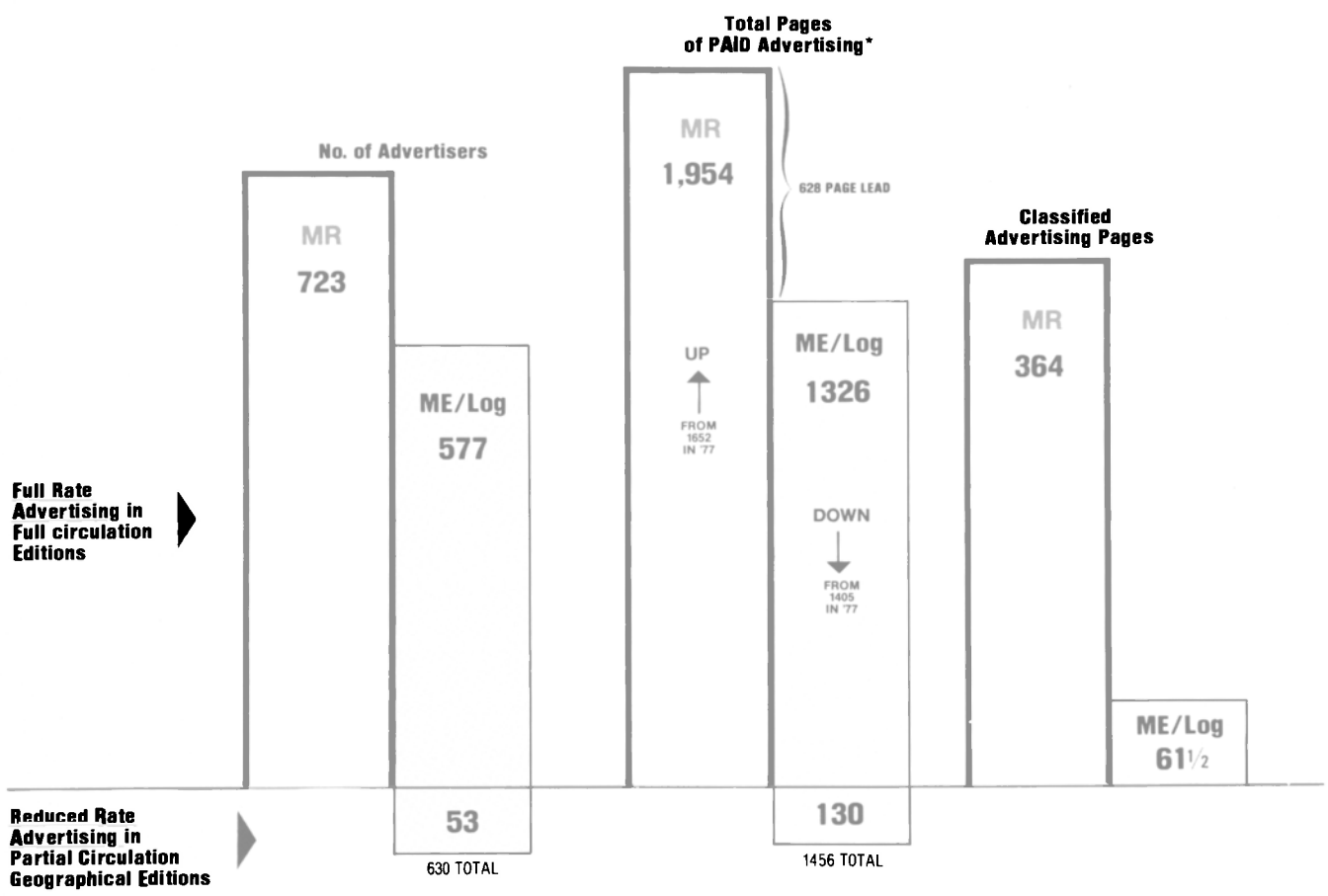
* The Work Boat does not include titles for all of its readers in its circulation statement. Therefore, it is not possible to determine the number of buying influence readers reached by The Work Boat.

THE WORLD'S LARGEST CIRCULATION TO BUYERS

MARINE MAGAZINE

...BY THE WORLD'S LEADING MARINE ADVERTISERS

COMPARE 1980 ADVERTISNG LEADERSHIP



*MARITIME REPORTER/Engineering News carried a total of over 1,200 oversize 9 ." x12" pages of paid advertising in 1980, all full run at full rates. These are reported above in standard 7"x10" page equivalents (1954) for comparison with standard 7"x10" pages of ME/L. Universally accepted method for reporting oversize ad pages in leading national industrial marketing/advertising magazine

FOR THE BEST ADVERTISING RESULTS

ONLY MARITIME REPORTER GIVES YOUR ADVERTISING THESE POWERFUL SALES BUILDING ADVANTAGES

- **WORLD'S LARGEST** circulation to buying influence readers
- **LARGEST US** circulation to buyers
- **LARGEST INLAND/OFFSHORE** (Shallow draft) circulation to buyers
- **100% REQUESTED CIRCULATION**...in writing ...by each individual reader
- **MOST CURRENT CIRCULATION**...MR's total circulation is 100% qualified. Largest percentage of currently (less than 1 yr.) qualified circulation in the industry.
- **CIRCULATION TO PEOPLE** Total Circulation Address Analysis...99.1% addressed to individual people...by name and title.
- **CURRENT EDITORIAL**...TWICE each month ...MR publishes latest info FIRST
- **BEST READ** because it is CURRENT...weeks ahead of slower monthlies
- **UNEQUALLED PASS-ALONG READERSHIP**...5 readers per single copy...over 200,000 monthly readership
- **FREE READER SERVICE CARD**
- **EXCLUSIVE FREE LISTING** for regular advertisers in Buyers Directory section of all 24 issues for one entire year.
- **DIRECT MAIL SERVICE**
- **DIRECT RESPONSE CARD MAILINGS**

MARITIME REPORTER AND ENGINEERING NEWS

MARITIME REPORTER /Engineering News
107 East 31 Street New York, N.Y. 10016
(212) 689-3266

COAL RETURNS TO

C-E designed boilers will power the first six coal-fired steamships ordered in two decades. Naturally.

Combustion Engineering has long been a world leader in both marine boilers and coal-firing technology. So it's only natural that C-E boilers were selected to power the first six coal-fired steamships ordered in 20 years.

C-E designed coal-fired boilers will be aboard two 75,750 DWT bulk carriers to be built by Italcantieri, SpA for Bulkships Limited of Australia. Boilers of our design will also be on a pair of 74,700 DWT bulk carriers under construction by Mitsubishi Heavy Industries, Ltd., Japan, for The Australian National Lines. As well as on two 154,400 DWT bulk carriers to be *converted* by E. N. Bazan of Madrid for E. N. Elcano of Spain.

C-E modified a proven marine boiler design to permit coal-firing via spreader stoker. But we retained the conservative furnace rating, superheater design with vertical arrangement and wide tube spacing, and in-line main bank tubes that have been the hallmark of our oil-fired boilers.

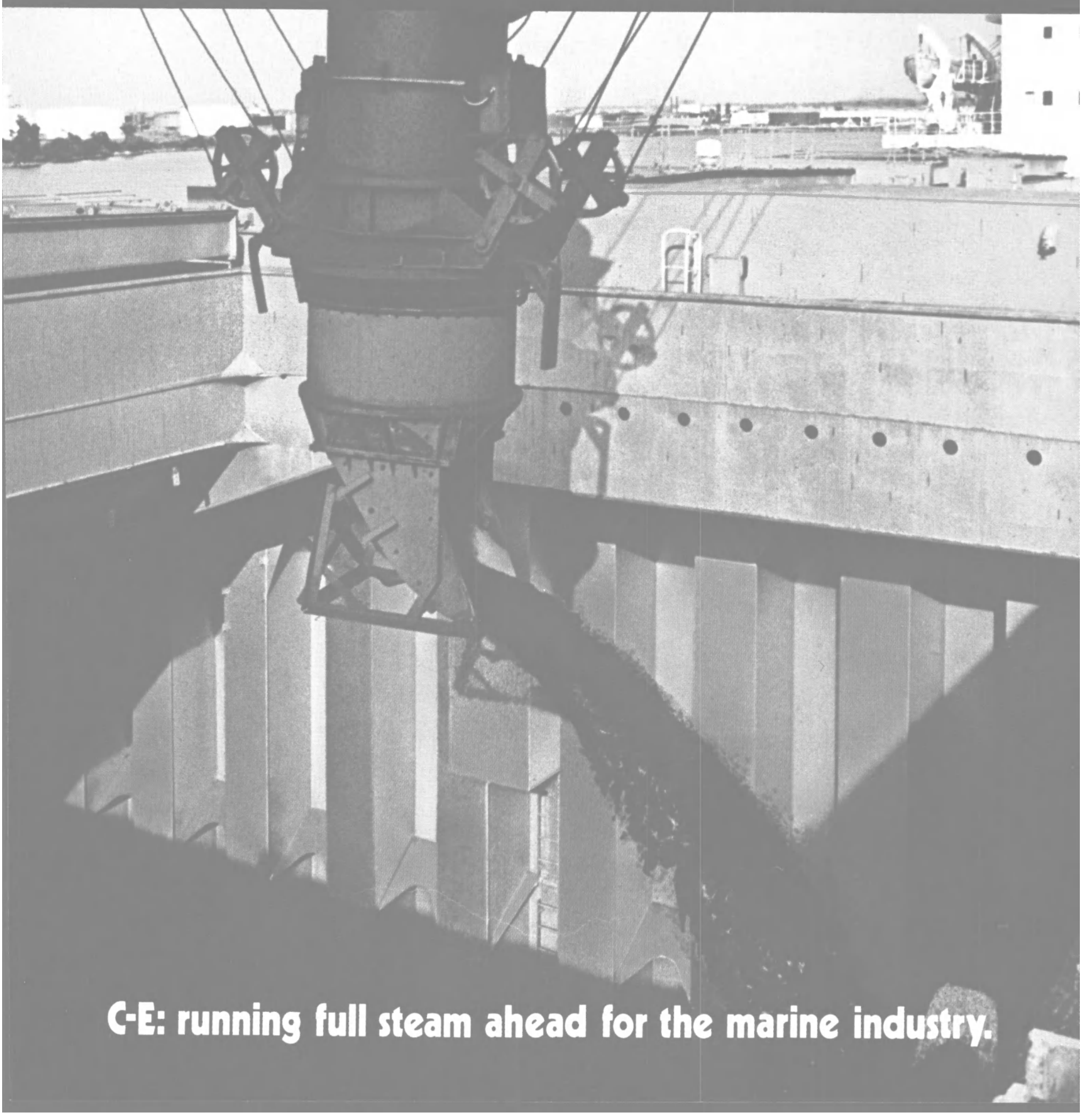
Many countries, eager to lessen their dependence on oil, are planning new coal-fired electric generating stations. C-E is ready with the technology and know-how needed to build new marine boilers for coal-fired steamships that will provide economical coal transport for these new stations.

For more about C-E marine boilers that are powering the new breed of coal-fired steamships, contact C-E Marine Power Systems, Combustion Engineering, Inc., Windsor, CT, U.S.A. 06095.

CE POWER SYSTEMS
COMBUSTION ENGINEERING, INC.

Write **156** on Reader Service Card

THE HIGH SEAS.



C-E: running full steam ahead for the marine industry.

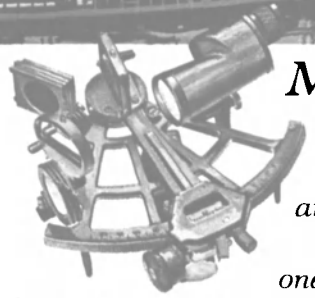
Europort '81

—Exhibitors

(continued from page 68)

Europort Organisation Inc. ..... (NA)
R.W. Fernstrum & Company E-419
Tech. Handelmij. P.J. Peteris Z-129
The Finnish Foreign Trade Association ..... t/m O-709
Frehenco W-203
Frijdal-Techniek B.V. O-767
Gebhard Electro B.V. E-351
Geha K.M.T. B.V. A-693
General Marine Service B.V. E-379
Gesellschaft Fur Wirtschafts-Forderung In Nordrhein-Westfalen GmbH ..... (NA)
Geveke Motoren & Grondverzet E-366
Giesselbach Electro Engineering A-667
The Glacier Metal Co. Ltd. E-363
Glas Keramik E-405
Goetze AG ..... (NA)
B.V. Machinefabriek D.E. Gorter E-391
Gosau B.V. O-742
v.d. Graaf Werktuig & Constructiebouw B.V. E-333
Grandi Motori Trieste .. E-349
Granges Repair Service GmbH E-345
Graviner ..... (NA)
Grenco B.V. Afd. Schepen O-712
De Groot Nijkerk Machinefabriek E-341
Pompes Guinard ..... (NA)
Gottfred H. Petersen ..... (NA)
Handelscompagnie B.V. .. N-815
Schiffahrts-Verlag "Hansa" ..... (NA)
"Dieselbedrijf Hardinxveld" BV E-347
Hatz Nederland B.V. E-302
Havam Techn. Import Mij E-332
Heinen & Hopman B.V. .. E-329
Hendriks Interlining & Co. ..... (NA)
Heybroek & Co. Handelsmij. B.V. E-389
Hiab-Foco B.V. O-724
Hoekloos B.V. W-202
Holec Machines Systemen Groep E-362
Radio Holland B.V. F-382
Holland Foundation Equipment N-812
Holland Repair & Service BV A-640
Holland Shipbuilding E-321
Hollming Oy E-356
BV Holmatro Ind: Equipment V-506
Hoogerwerf Staalkabel BV Z-119
De Hoop Groenpol B.V. .. A-623
Howaldtswerke-Deutsche Werft AG. ..... (NA)
Hungarian Shipyards And Crane Factory A-654
Hungexpo N-824
Hutchinson Industrie E-418
Hydraudyne B.V. E-371
Hydroland S.A.F. Du Ferodo E-409
Ing. Bureau Hartogs .. A-689/2
Hydrowega Holland B.V. E-331
I.F.G.-Dr. M. de Wit Z-112
Imbema B.T.I., B.V. A-669
Impexpo Z-217
Ina Naaldlager Mij. B.V. E-360
Inchcape Export Ltd. Z-108
Indumij N.V. E-403
Intec Press B.V. E-418-2
Intermundo B.V. E-384-3
International Dredging Gear Suppliers E-333
International Navigatie Apparaten B.V. Z-118
Interproducts B.V. E-342
Iro E-300
Italcantieri SpA O-700
Jan Jakobson Holding Ltd. E-410
Japan Ship Machinery Export Assn. A-648
Jet Aandrijvingen Nederland B.V. A-676
Jong T.H., B.V. O-714
De Jong & Lavino B.V. .. N-810
Technische Handelsonderneming .. E-350
Kleber Colombes E-373
Kleber Rubber Nederland B.V. E-373
B.V. Technisch Bureau Van O-756
K.L.M. Nederland E-412/1
Kloeckner-Humboldt-Deutz A.G. ..... (NA)
Kloeckner-Werke AG .... (NA)
K.M.K. Kompressorenbau ..... (NA)

(continued on page 78)



Mariners Seek Texaco's "STAR" Products

Telephotos of the Trifid Nebula reveal its glorious array of color. More familiar, however, is the star Nunki, one of 58 chosen by navigators to help guide them across trackless seas to ports like New Orleans. For marine service and products proven to be as reliable as these celestial bodies, mariners seek Texaco and its star products.

For information on our "Star" marine lubricants Ursa, Doro and Taro diesel engine oils, our Regal R&O turbine oils, Capella, Meropa and all your marine lubricant needs, contact our local Marine Sales Representative or:

TEXACO
WORLD WIDE
MARINE FUELS AND LUBRICANTS

Texaco Inc.
International Marine Sales Dept.
2000 Westchester Ave./White Plains, NY 10650
Phone: (914) 253-4000

Texaco Ltd.
International Marine Sales Europe
1 Knightsbridge Green/London SW1X 7QJ
Phone: 01-584-5000

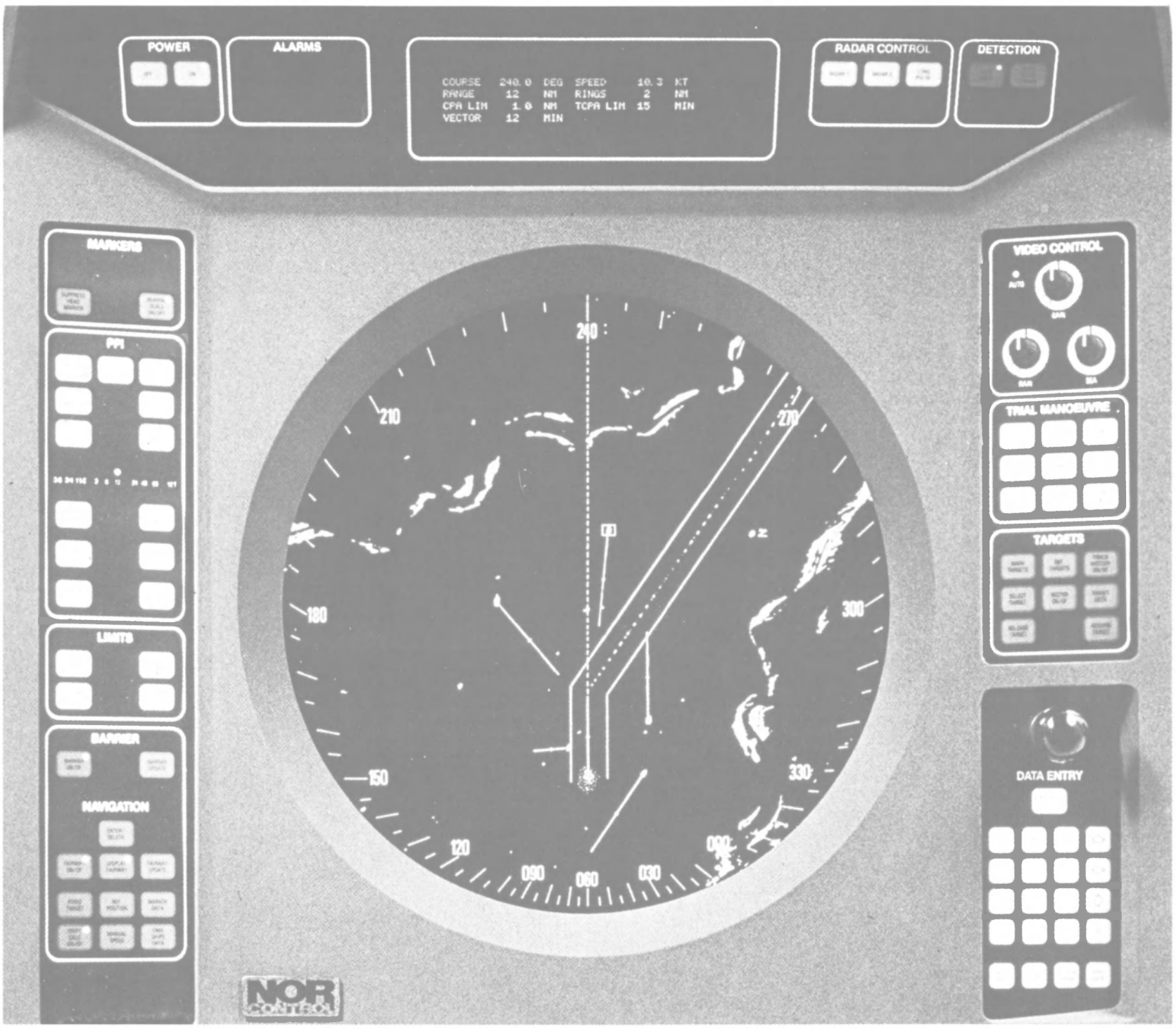
Europort '81 —Exhibitors

(continued from page 76)

G.A. De Knegt B.V. A-632
K.N.Z.H.R.M. A-699
J. Kobelt Manufacturing Ltd. ..... (NA)
Koepcke Agenturen B.V. O-718
Koning En Brevini A-607
Kontram Oy ..... (NA)
Konijn Hoorn Machinebouw B.V. E-354
Krolex Scheepvaart- & Handels-Onderneming A-690/1
Diesel Krome Engineering B.V. E-320
Kroon B.V. Z-139
Friedrich Krupp GmbH .. (NA)
Krupp MaK GmbH E-375
Kuyl & Rottinghuis .. A-699/2
Oy Kontram AB O-701
Scheepswerf Kunst A-609/2
Laan & Kooy E-314
Lamers Reinigingstechniek E-335
Van Leeuwen Buizen B.V. A-601
Leonard Lang B.V. A-677
Van Lessen & Punt B.V. V-512
Lips B.V. A-649
Dr. Lorenz & Bogo GmbH & Co. KG W-205/W-240
MacGregor Holland B.V. A-618
Maessen, Dhr. A-633
Mak Nederland B.V. E-375
M.A.N. Maschinenfabrik O-710
Motoren-Werke Mannheim AG ..... (NA)
Mariflex Services B.V. .. E-324
Matex Deuren B.V. E-368
Matra B.V. Z-137
Mennens & Co. Handelmij B.V. Z-120/Z-138
Scheepswerf En Machinefabriek Merwede N.V. E-381
Metalas Holland B.V. D-503
Oy Metos Marine ..... (NA)
Jos L. Meyer ..... (NA)
Millstone Electronics A-691
Ministerie V. Landouw & Visserij Dir. Visserijen/ Afd. Vormgeving E-415
Mobil Oil B.V. A-651
Motor-Parts B.V. O-759
MTU Motoren Und Turbinen Union Friedrichshafen GmbH O-711
Oy Metos Marine E-412-2
Metagis B.V. Z-126-2
Napier Turbochargers Ltd. ..... (NA)
National Forge Co. O-769
Nautica Sport A-671
Nautiservo B.V. E-386
"Navimpex", Centrala Navala N-825
Nebim Handelmij A-622
Nederlandse Middenstandsbank N.V. A-635
Nederlandse Scheepshypotheekbank N.V. A-638
Nico International -Sweden E-417
Niessen Staal-En Scheepsbouw B.V. A-656
Nifrabo A-674
T.M. Noten B.V. O-716
Nova Werke AG N-822
NRF Thermal Engineering B.V. Z-100
Navikaris V-508-1
Navimor E-384.2
Observator B.V. Z-121
Olaer N.V. Z-101
"Oranje", Vereniging .. A-605
Palfinger O-717
Passe-Partout, Ingenieursbureau O-763
Pax Marine AB E-364
Phoenix AG N-802
Pimentel-Granaat B.V. .. E-359
Pleuger Techniek B.V. .. E-348
Polomnis B.V. A-608
Pols Agregaten B.V. -v. Goor-Key E-322
Potgieser B.V., D. Plaatwerkerij A-698
PTT, Staatsbedrijf A-683
Rabo Bank Nederland .. A-613
Rauma Repola Oy ..... (NA)
Ravas B.V. O-717
Reintjes GmbH, Eisenwerke ..... (NA)
Rebotool B.V. A-699
Regulateurs Europa B.V. A-692
Rekab Groningen B.V. .. A-696
Rhigo B.V. A-604
Rochem Holland B.V. Z-111
Roos B.V., Ingenieursbureau E-361
Rijdam B.V., Technisch Bureau V-510
Rijkspolitie Korps A-636
Rijn B.V., A. van A-666
Rijnmond Engineering B.V. A-680

(continued on page 80)

DATABRIDGE 7
THE ULTIMATE ARPA



DataBridge 7 is a third-generation Automatic Radar Plotting Aid that acquires and tracks up to 50 radar targets and continuously displays collision avoidance data on the most threatening 20. It will sound a collision warning alarm whenever any of these target tracks exceed user specified values for closest point of approach and time to closest point of approach. As a collision-avoidance system, it meets or exceeds all IMCO recommendations and U.S. Maritime Administration (USCG) Standards, soon to be mandatory for all vessels over 10,000 gross tons.

The DB-7 acquires targets throughout the operator-designated search area—not just when a target penetrates a guard ring. The system displays anti-collision data in the form of vectors superimposed over a daylight viewable 16" radar presentation. Operator selection of true or relative vectors, and vector length provide the utmost in system flexibility. Full trial maneuver facilities, including operator selection of time-to-maneuver, quickly and clearly show the results of maneuver alternatives. The DB-7 warns the operator when the proposed maneuver does not satisfy his CPA and TCPA criteria or when it will bring him into conflict with a previously non-threatening target.

And DataBridge 7 is much more than a simple ARPA. Channels and fairways, radar locked to fixed geographical references, can also be displayed. In addition to warning the operator if the vessel strays from its intended track, this display provides the information that is vital to assure that a maneuver to avoid a collision with another ship does not result in a collision with the bottom.

And Norcontrol hasn't forgotten the operator. In addition to a control panel layout designed to simplify operation and reduce fatigue, the DB-7 includes a built-in training simulator. Preprogrammed training exercises are presented to the officer to develop his ability to operate the system and effectively use all of the information it provides. Operational problems related to new crew members or crew turnover are virtually eliminated.

Finally, Norcontrol's unquestioned reputation for reliability and service are your best assurance that the DB-7 will operate perfectly and keep on working for years to come.

NOR CONTROL

Norcontrol Division of Kongsberg AS, P.O. Box 145, Horten, Norway 3191 • (47-33) 41-436
Maritime Division, Kongsberg North America, Inc., 135 Fort Lee Rd., Leonia, NJ 07605 • (201) 947-6788

Write **472** on Reader Service Card

Europort '81 —Exhibitors

(continued from page 78)

Rijn-Schelde-Verolme RSV O-744
Diesel Bedrijf Rotterdam B.V. E-353
Rommenhoeller Koolzuur B.V. O-771
Roodenburg B.V. A-660
Saarloos Warmtetechnik & Airconditioning N-801
SACM E-394
Sakaphen GmbH & Co. KG ..... (NA)
Samofa Diesel B.V., MHI N-800
Sander KG, Wilhelm Z-123
Sanders & Zoon N.V., G.B. E-383
Scanmaso B.V. D-502
Scheeps Diesel Motoren MIJ E-352
Schram Bolnes B.V., Scheepswerf E-351
Schichau Unterweser AG ..... (NA)
Schiffscommerz GmbH .. E-407
SIHI Maters Z-117
Skyfotos Ltd. ..... (NA)
Snijder Hasselt B.V. .. A-699-3
Sofrance ..... (NA)
Spamar Engineering Z-114
Sperry Marine Systems .. E-411
Staay & Zn. V.D. Z-126.1
Steenkist-Rooymans B.V., A.J. W-201
Stigt B.V., Techn. Handelsond., Van E-343
Schmidt GmbH, Karl E-376
Schottel Nederlands B.V. A-685
Schrader Bellows Division D-501
Schreiner & Co. Luchtvaart-Tech. N-821
Schuttevaer De, Weekblad A-678
Seehafen-Verlag ..... (NA)
Sempress B.V., Machinefabriek E-301
Shell Nederland Verkoopmij; B.V. A-694
Shipmate Vlag J. Thurmer A-615
Ships Radio Services Ltd. N-819
Stork Services B.V. O-713
Stork Werkspoor Diesel B.V. E-328
Stromag GmbH, Maschinenfabrik ..... (NA)
Struik & Hamerslag N-816
Swedish Telecom O-723
Scan Steering A/S ..... (NA)
Tangie Engineering Ltd. ..... (NA)
TBO B.V., Techn. Industrie Z-116
Techmation N.V. O-722
Technautic B.V. A-621
Technocommerz GmbH .. E-406
Tecnic Gali S.A. A-611
Telstar Harderwijk B.V. A-687
Thyssen Industrie AG .... (NA)
Tools B.V. E-369
Transmark B.V. N-805
Triton B.V. Dassenfabriek D-505
Troost & Zn. B.V., M.J. .. A-624
Tubeman Electronics Z-130
Turbo-Technik GmbH .. O-760
Transport Efficiency N-803
Taselaar B.V. A-653
Ubel B.V. E-372
United Kingdom British Marine Equipment Council O-745.1
USA O-725
Europort Organization Inc. O-740
Valmet Oy Helsinki Shipyard ..... (NA)
Vecom B.V. N-817
Velp B.V., Rubberfabriek E-393-1
Veltman B.V., J.J. E-388
Venteville, Nautish en Technisch Bur. W-200
Vereinigte Deutsche Nickel-Werke AG ..... (NA)
Vickers Shipbuilding Group Ltd. ..... (NA)
'Visserij Wereld, De' Weekblad V-511
Vlaardingen-Oost Bedrijven B.V. O-754
Voorden Groep, Van E-315
Vredestein Industrial Products B.V. E-378
Vries B.V., A. de A-684
Vugt B.V., Van A-619
Vikubo B.V. N-826
Van Der Velden B.V. .. O-675-1
West Germany Dr. Lorenz & Bogo GmbH & Co. KG W-205-W-240

'Wiel De' B.V., Shipyard	E-387
Winkel B.V., De Firma	A-628
Wouter Witzel B.V.	Z-105
Woodward Governor	A-620
Wormald Fire Systems	(NA)
Wortlelboer Jr., G.J.	E-370
Worth Nederland B.V.	Z-124
Richard Wolf GmbH	O-768
WABCO Westinghouse B.V.	E-327
Wagner Engineering Ltd.	A-644
Walker Nederland N.V., James	Z-125
Warman, Benelux, Simon	Z-103
Wartsila	(NA)
Wartsila Vasa Diesel	E-408
Watersport B.V.	E-325
Weka Krimpen B.V.	E-340
Wennekes, Firma	A-657
Werimex B.V.	E-377
Westfalia Separator AG	(NA)
Zahnradfabrik Friedrichshafen AG	O-741
Radio Zeeland	E-318
Technisch Handelsbureau Zeilstra	Z-104
Machinefabriek Zijlman	A-609-1
Zeevenhooven & Co. N.V.	V-508-2

New Hempel Calendar Features Six Illustrations Of Famous Windjammers

Readers can no doubt remember when hundreds of thousands of spectators flocked to the start of Operation Sail, commemorating the bicentennial in 1976, to witness the unique and fascinating sight of training ships under full sail.

Hempel's Marine Paints, New York, N.Y., one of the largest independent marine paint manufacturers, commissioned the well known Scottish artist **John Gardner** to draw six of the largest windjammers as illustrations for their 1982 calendar.

Hempel has often used **John Gardner** as illustrator for their calendars with great success. The 1982 calendar will surely become a collector's item, particularly the front page depicting several ships together at the start of a Tall Ships race.

MarAd Is Favorable To Proposed Construction Of ITB Incinerator Vessels

The Maritime Administration has notified At-Sea Navigation Inc. of its general willingness to provide Title XI financing to aid in the construction of two integrated tug/barge vessels for incineration of chemical wastes at sea.

At-Sea Navigation is actively developing an incineration-at-sea project and is in the process of obtaining necessary permits and negotiating contracts for designing and developing plans for onshore waste collection terminals.

Tank trucks will collect and transport hazardous chemical wastes from customer sites to marine terminals. The vessels will take the wastes to a burn site off the eastern coast of the United States. Upon completion of project plans and details, At-Sea will update its application and request formal MarAd Title XI approval.

Guralnick Assoc. Awarded Contract To Study Vessel Boiler Emissions

Morris Guralnick Associates, Inc. (MGA), San Francisco-based firm of naval architects and marine engineers, was recently awarded a contract to assist in a study of marine boiler operations relating to vessel exemptions from emission control standards established by California law in 1978.

The purpose of the study, commissioned by the State Air Resources Board (ARB) under mandate of the California legislature, is to help determine the need for continuing emission exemptions beyond their scheduled expiration date of January 1, 1984.

MGA will study the emissions and measures that may be taken to minimize emission content, and advise the ARB as to what course of action should be followed.

Automated Coal Terminal Opens

(continued from page 82)

in the terminal includes a rotary car dumper and train positioner; a rail-mounted stacker/reclaimer; a radial stacker; an alternate reclaim system consisting of a ground level hopper, grillage and tunnel; and a stationary luffing boom-type barge loader. A barge haul system and interconnecting conveyors and transfer towers also are part of the facility.

The unit train dumping system is designed for automatic, centralized control of the dumper and positioner. Safeguards built into the system include automatic car clamps to hold a fully loaded frozen car, and a manual dumping cycle which permits the operator to visually inspect a car before dumping. Television monitors also are used in this phase of the operation.

When coal leaves the railcar it is discharged through a grillage into a 200-ton surge hopper lined with abrasion resistant plate. Three vibrating feeders, each handling up to 1,500 tons per hour, then move the coal to a series of conveyors and transfer towers.

Within the storage yard, which eventually will have the capability to store up to one million tons of coal, a track-mounted stacker/reclaimer places inbound coal in the appropriate storage location. When marine equipment arrives to load at the terminal, the stacker/reclaimer delivers coal to the barge loader at a rate of 4,700 tons per hour.

When marine equipment arrives to load coal at the terminal, the stacker/reclaimer picks up the coal at a rate of up to 4,700 tons per hour, delivering it to the barge loader.

Barges are loaded continuously at a rate of 5,700 tons per hour through a system which uses a string of five barges. Unit tows serving the Cora Coal Transfer Terminal will have the capacity to haul up to 50,000 tons of coal.

Unit tows serving the Cora Coal Terminal have the capacity to haul up to 50,000 tons of coal.

The HNG mine-to-market coal handling system includes St. Louis Ship, which operates three shipyards specializing in barges, towboats, and other marine equipment.

Marine equipment utilized at the terminal, as well as other terminals, are operated by another HNG company — Inland Waterways Division (IWD) of Pott Industries. The Division has more than 60 years of operating experience and has a fleet of 650 jumbo barges and towboats ranging to 10,500 hp.

MarAd Publishes Study Of Vessel Operating Costs

The Maritime Administration recently released a 46-page publication containing estimated vessel operating expenses for 41 vessels of various types selected to represent a cross section of the American merchant fleet. The expenses, shown as of July 1980, are intended for use for broad-based estimating purposes only. Copies of the pamphlet "Estimated Vessel Operating Expenses," are available through MarAd's Office of Public Affairs, U.S. Department of Transportation, Washington, D.C. 20590.

Write **279** on Reader Service Card

THE CHALLENGE:

Rebuild the U.S. to a position of maritime superiority.

THE SOLUTION:

NASSCO is ready to serve.

NASSCO's 1000′ × 175′ graving dock being fully utilized to build the first of three 37,500 DWT Carlsbad Class Product Tankers for Union Oil and to reactivate/re-engine two Alatna Class T-AOG gasoline tankers for the U.S. Navy (MSC).

DEMONSTRATED CAPABILITY

☐ NASSCO has delivered or is building thirty (30) U.S. Navy auxiliary ships totaling over 392,000 full load displacement tons while also building forty-six (46) cargo ships, bulkers, and tankers totaling over 2,825,000 DWT for the U.S. Merchant Marine. Current backlog includes two AD destroyer tenders and one T-ARC cable repair ship for the U.S. Navy plus seven 37,500-44,000 DWT product tankers for Merchant Marine service.

☐ Complete reactivation, repair, and conversion capability has been developed for U.S. Navy and Merchant Marine vessels including re-engining and IMCO retrofits.

COMMITMENT TO SHIPBUILDING

☐ NASSCO has been continuously of service to the U.S. Navy since 1960, building auxiliary ships.

☐ NASSCO delivered her first merchant ship to American Export Lines in 1961 and has been serving this market ever since.

nassco®

National Steel and Shipbuilding Company A Wholly-Owned Subsidiary of Morrison-Knudsen Co., Inc.

The *Can Do* yard

28th & Harbor Drive, San Diego, CA / (714) 232-4011

Cat Announces New 1,200 RPM 3412 Marine Engine —Brochure Available

Caterpillar Tractor Co., Engine Division, has announced a new 1,200-rpm 3412 marine engine configuration rated 317 kw (425 hp) at 1,200 rpm continuous and 354 kw (475 hp) at 1,200 rpm medium-duty commercial. This new configuration was designed to operate within the 450-1,200 rpm range.

A single turbocharger, jacket water aftercooling, and a direct-injection fuel system contribute to the 3412 low-speed marine engine's excellent fuel economy. With a best BSFC of 213 g/kw h (0.350 lb/hp-h), the 1,200 rpm 3412 achieves the most efficient fuel economy.

In addition to fuel economy resulting from low-speed operation, other operating costs may be low. Reduced piston and bearing speeds, low mechanical friction, and lower thermal and mechanical loads all tend to enhance engine reliability and durability. Also, due to slower engine speed, engine noise is reduced.

Cat reports the 1,200-rpm 3412 is not merely a "turned down" 1,800-rpm or 2,000-rpm engine. The turbocharger has been resized and injection timing modified to provide excellent fuel consumption and performance at the lower speeds. Fuel injection lines and nozzles have been downsized. The engine coolant pump and lubrication system have been recalibrated for continuous low-speed operation.

For further information and a copy of the brochure,

Write 45 on Reader Service Card

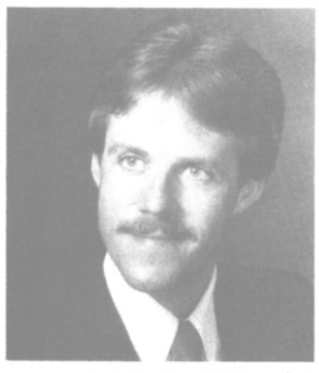
Marathon Singapore Yard To Build Large Drilling Tender For Petrodril

Marathon Manufacturing Company's Republic of Singapore subsidiary, Marathon LeTourneau Offshore Pte. Ltd., has begun construction on a large drilling tender support vessel for Petrodril Company, Inc., a Republic of Panama corporation.

The 320-foot by 70-foot by 34-foot 6-inch drilling tender, largest such vessel ever built at the Marathon facility, is scheduled for delivery in August 1982. It is contracted to Brunei Shell Petroleum to support that company's platform drilling program.

Financing for the vessel was arranged under the ECICS, Export Credit Insurance Corporation of Singapore, fixed rate export financing (FREF) scheme and is the first for a vessel of this type. The keel-laying was attended by representatives of Private Investment Company for Asia (PICA), Manufacturers Hanover Trust Company, and Brunei Shell Petroleum, as well as representatives of Petrodril and Marathon.

David Church Named SI-TEX Marketing Manager



David Church

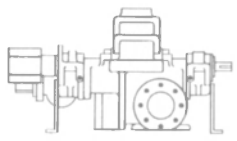
David R. Church has been named marketing manager of SI-TEX Marine Electronics, Clearwater, Fla. He succeeds **Ted Hansford** who was promoted to general manager.

Mr. **Church** will be responsible for marketing the SI-TEX line of marine radars, depth recorders, Loran C receivers, VHF radios, and ADF equipment. He joined SI-TEX in 1976 as sales administrator and was promoted to sales manager last year.

CAMAR

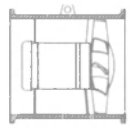
ENGINEERED PRODUCTS & SYSTEMS

○ *STEAM TURBINES—From 1 BHP to 2000 BHP*



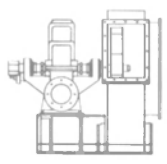
Horizontal and vertical configurations. Vertically-split casings for those requiring economical power; horizontally-split casings where specified. Standard equipment includes constant speed mechanical governor, emergency overspeed trip, metallic or carbon packing. Wheel diameters from 4" to 24" Optional accessories include Woodward governors, back pressure trips, forced-feed lube, pump governors, tachometers, couplings, insulation, special mounting flanges, gageboards, etc. Built to all regulatory requirements. For driving pumps, fans, compressors, generators.

○ *AXIAL BLOWERS, MOTOR OR TURBINE-DRIVEN—to 80,000 CFM*



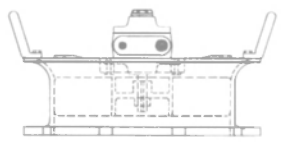
Axial and vane-axial designs. Fan impeller direct-mounted onto motor or turbine shaft. Turbine can be run on steam or air. Explosion resistant throughout. Can be mounted horizontally or vertically. For blowing, exhausting, or sucking. Flanged on either or both ends to meet your specific requirements. Sizes from 9" to 60".

○ *TURBINE-FAN PACKAGES—to 90,000 CFM*



Centrifugal fans that are either directly mounted onto turbine shaft, or flexibly-coupled with separate bearings. Turbine and fan housing mounted on common bedplate. Fan impellers of aluminum alloy and other corrosion resistant materials. High speed design for efficient operation and minimum space requirements. Specifically designed for forced draft fan, gas-freeing fan, and inert gas fan applications. Sizes from 12" to 42".

○ *PORTABLE GAS-FREEING BLOWERS*

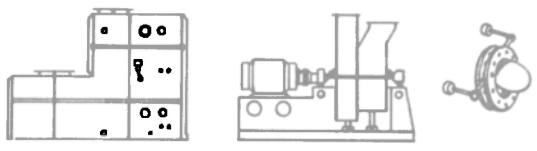


Close-coupled, light weight, axial flow ventilators complete with water or steam and air turbines. Sparkproof construction for blowing or exhausting in hazardous areas. Size TB-12 designed for mounting directly onto standard Butterworth opening. Other sizes available with special transition pieces to fit onto standpipes and other openings.

○ *INERT GAS SYSTEMS*

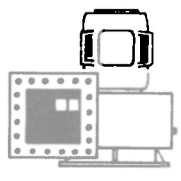
Complete systems for new-buildings or retrofitting. All components designed and manufactured in the United States, consisting of flue gas valves, scrubber, motor or turbine fan packages, gas regulating valve, non-return valve, deck water seal, and main control panel. Optional: auxilary control panels, fan isolation valves, deck valves, etc. Complete system designed for specific vessel's requirements.

○ *REPLACEMENT IGS COMPONENTS*



Custom-designed replacement packages for all makes of IGS components, to fit into existing spaces without the need for hot-work on open decks, or costly re-piping or steelwork. Upgrading or replacement of any part, to meet latest IMCO and U.S. Coast Guard requirements. Includes high-efficiency inert gas fans, double-disc flue gas uptake valves, deck water seals, non-return valves, control panels, scrubbers, etc.

○ *TOPPING-UP FANS*



Specifically designed for installation between flue gas scrubber and gas regulating valve. Used for topping-up when at sea. Motor-driven, only 20-horsepower, conserves electrical energy; pays for itself in a short time. Provides additional back-up for self-assurance and safety. Easily installed. Inconel 625 self-cleaning impeller.

• • • *WORLDWIDE SERVICE!*

Factory-trained engineers, under factory supervision, responding quickly to your IGS, turbine, or blower problems, regardless of type or origin. Expert re-balancing, reblading, and retesting of all rotating components. Engneering services, including surveys, preparation of installation drawings, and installation supervision.

CAMAR CORP. Designers and manufacturers of Marine Turbines, Fans, Air-Flow Systems
186 Prescott Street, Worcester, Mass., U.S.A. 01613 Telephone (617) 752-5685 Telex 920324

Varo Forms Searchlight Products Group, Two Appointments Announced

Varo, Inc., Integrated Systems Division of Garland, Texas, has formed a searchlight products group to better serve its customers in the marine industry. **Wayland Edwards** has been named manager of this new group. **Pat Woolheater** has been promoted to sales administrator and will coordinate customer sales activities. **L.C. (Bert) Johnson**, senior field service representative, will continue to coordinate the Varo-related activities of the dealer/service network on the Inland Rivers, Gulf Coast, and in Canada.

Varo, Inc. is a leading manufacturer of xenon marine searchlights and is well known as a manufacturer of night vision equipment.

Waukesha Offers Brochure On Line Shaft Bearings

Waukesha Bearings Corporation, Waukesha, Wis., a subsidiary of Dover Corporation, offers a wide range of ship propulsion line shaft bearings for shafts from 14- to 36-inch diameters. Three types are available — self-aligning, non-aligning or tilting pad journal bearings. Literature detailing the types and specifications has been published recently by the company.

A choice of disc, ring, or forced oil lubrication is offered. Adequate oil delivery is insured under all conditions, including extremely low revolutions by self-contained or pressure lubricated systems. A special water cooled bearing can be provided upon request for specific applications.

All Waukesha bearings feature tin babbitting centrifugally applied and metallurgically bonded to the bearing for maximum operational efficiency.

For literature on the Waukesha line of shaft bearings,

Write 16 on Reader Service Card

J.J. Connolly Appointed Port Director By The Port Everglades Authority

James J. Connolly

The Port Everglades Authority announced recently the appointment of **James J. Connolly** as port director.

An experienced transportation executive, Mr. **Connolly** will bring over 30 years of maritime experience to his new position at the South Florida seaport. His expertise in the container and passenger ship industries dovetails perfectly with the Port's development program.

Prior to establishing James J. Connolly Associates, Maritime Consultants, Mr. **Connolly** spent seven years in numerous senior management positions at Seatrain Lines.

Sperry Collision Avoidance Systems —Literature Available

Sperry Marine Systems, Great Neck, N.Y., has published a 12-page booklet describing the capabilities, instrumentation, and installation of its newest line of collision avoidance systems.

One of the features of the system is its assessment of potential collision situations. The Sperry patented "Predicted Area of Danger" (PAD™) uses computer-generated graphics to provide the ultimate solution to the radar plotting problem. The booklet also lists the technical specifications of the equipment.

For a free copy of the Sperry collision avoidance system booklet,

Write 17 on Reader Service Card

Foreign Coal Buyers Register Published By Commerce Dept.

The growing importance of coal exports is highlighted in a recently published U.S. Commerce Department trade list of foreign buyers and dealers interested in purchasing the fuel.

Compiled by the International Trade Administration, the 156-page booklet identifies 2,348 agents, distributors, general importers, and end-users of coal. It also includes a list of 66 coal import leads.

The booklet, covering buyers in 98 countries, lists the address, the name and title of an officer, the year the firm was established, the relative size, and number of employees, the telephone number, the telex number, the cable address, and codes indicating the range of products or services of the firm.

The booklet costs $5 prepaid from the U.S. Department of Commerce, Room 1312, Washington, D.C. 20230, telephone (202) 377-2988. It is also available from Commerce Department district offices.

New Epoxy Coating From Devoe/Prufcoat —Literature Available

A new epoxy polyamide coating with the corrosion resistance of coal tar epoxy, but without its application or toxicity problems, has been introduced recently by Devoe/Prufcoat, Devoe & Raynolds Co., a division of Grow Group, Inc.

Known as CHEM-TAR™ High Build Epoxy Coating, it may be applied wherever conventional coal tar epoxy is specified and gives steel and masonry excellent abrasion and corrosion resistance to sewage, oil, alkali, dilute acids, fresh water, and salt water.

According to the company, CHEM-TAR Epoxy is easily applied and has an extended recoat time of up to seven days for immersion service, and up to 60 days in non-immersion service. It will cure effectively at temperatures down to 40° F, and features a high film build (8.0 mils dry film thickness). Other advantages include fewer health hazards because of low toxicity levels and excellent package stability for more than one year.

Steel surface preparation requires a near white blast (SSPC-SP10) in severely corrosive areas, and a commercial blast (SSPC-SP-6) in moderately corrosive areas. Normally applied by spray application in two coats at 8.0 mils dry per coat, CHEM-TAR Epoxy is self-priming on most surfaces.

For more information,

Write 41 on Reader Service Card

Duraline Introduces New Portable Heaters, Blowers —Literature Available

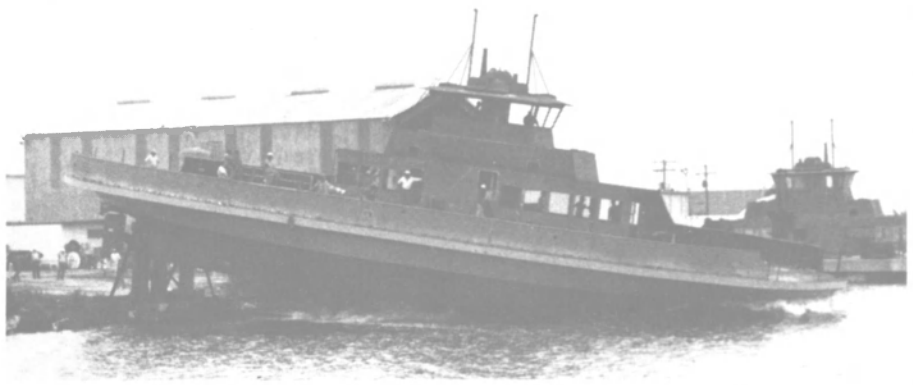
Duraline, of Islip, N.Y., a division of J.B. Nottingham Co., Inc., has introduced two new units on the market: model V500A portable ventilation blower and model V20KW portable heater attachment.

Duraline's V500A blower has two unique features: all-aluminum construction and a low weight of 48 pounds. It is the only unit of its kind with a rated capacity of 700 cfm. This unit includes a 1.5-hp, 230/460-volt, 3-phase, dust-tight motor and starter, internally wired. It's light enough to be hand-carried, well suited for ventilating hard-to-reach locations.

Duraline's V20KW heater, designed specifically for use with the V500A blower, is also lightweight (58 pounds) and easily hand-carried. Combined, the two units are ideal for drying out tanks and compartments. Each unit has its own switch for overload protection, and they need only be field connected. Overall dimensions are 28 inches long by 16 inches wide by 24 inches high.

For more information,

Write 22 on Reader Service Card



Caterpillar powered Eagle is launched at Atlantic Marine.

Two Ferries From Atlantic Marine For Service In Biscayne Bay

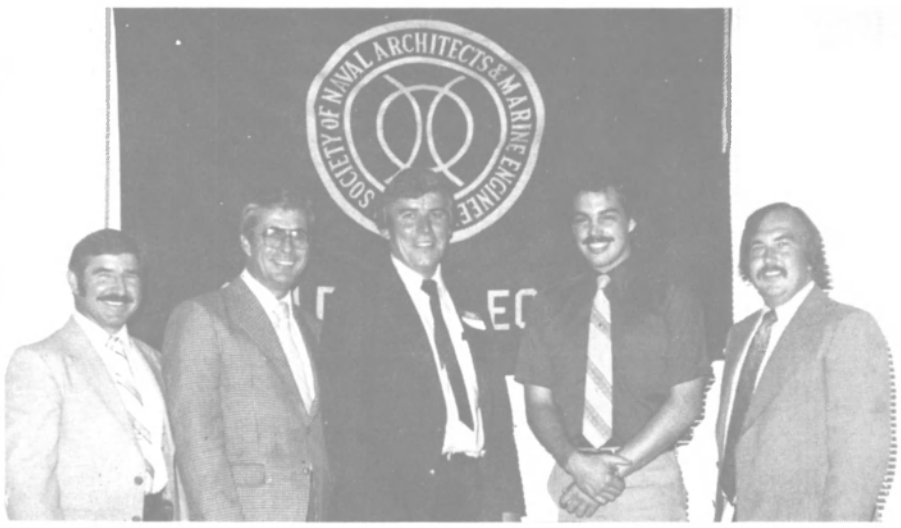
Atlantic Marine, Inc. of Ft. George Island, Fla., is completing the outfitting of two 75-ton, double-ender ferryboats for Island Developers, Miami.

The Pelican was delivered in October, while the Eagle has been launched and will be delivered before the end of the year. The 120-foot by 46-foot by 12-foot ferries are powered by two Caterpillar D-353 engines and are designed to carry 22 vehicles, 100 passengers, and a crew of three. Lounge seating capacity is 32 persons.

The boats will be used for transportation to and from Fisher Island in Biscayne Bay.

Atlantic Marine, Inc., located at the intersection of the St. Johns River and the Intracoastal Waterway, was established in 1964. The Jacksonville area shipyard constructs steel-hulled fishing boats, workboats, and specialized vessels for offshore and river use.

PELICAN/EAGLE	
Main Propulsion	(2) Caterpillar D-353
Propeller	Columbian Bronze Corp.
Shaft	J.M. Tull Metals Co. (tail) A.M. Castle (line)
Bearings	Copper Bearing Co.
Generator	Detroit Diesel
Panel	Con-Select
Engine Controls	Mathers Controls, Inc.
Steering	Wagner Hydraulic
Engine Monitors	National Marine Service
Pumps	Burks, Hydromatic, Sperry Vickers
Air Compressors	Quincy
Coatings	International Paint
Radar	ITT Decca
Electronics	VHF Radio/Raytheon



The officers and guests at the SNAME San Diego Section meeting, from left to right: **Robert Wernli**, author; **Don MacDonough**, chairman; **Kurt Schmidt**, vice chairman; **Craig Bunge**, executive committee member, and **Steven Donley**, secretary-treasurer.

SNAME San Diego Section Hears Paper On Unmanned Submersibles

The San Diego Section of The Society of Naval Architects and Marine Engineers began its 1981-82 program with a presentation on unmanned marine vehicles. Thirty members and guests of SNAME met at the Half Moon Inn in San Diego to hear **Robert Wernli** of the Naval Ocean Systems Center discuss his paper, "Experience with an Unmanned Vehicle-Based Recovery System."

The paper and presentation surveyed various types of unmanned and remotely controlled submersibles and focused on the manipulative and vehicle positioning features of the "Work Systems Package/Pontoon Implacement Vehicle." Through practical test programs, Mr. **Wernli** and his colleagues at NOSC have formed a technology base for continued development of these remotely controlled submerged vehicles. NOSC's design philosophy for these machines also was discussed. The goal of their design effort is remotely controlled systems, "that are as simple and rugged as the ocean itself."

Kockumation Names Three Agents In U.S. For Sales And Service

Kockumation AB of Malmo, Sweden, a world leader in the production and marketing of marine electronic equipment, recently announced the firm is now represented by three separate agents for coast-to-coast sales and service in the U.S.

NavCom Inc. of New York represents Kockumation on the East Coast and in the Great Lakes region. Collins Marine Corp. of San Francisco is the representative on the West Coast. On the Gulf Coast, Maricon Instruments of New Orleans is the representative.

All three agents will supply and service the entire range of Kockumation products, including Loadmaster cargo calculation instruments, Levelmaster systems for gauging tank levels and cargo volumes, Steermaster systems for precision maneuvering and the Tyfon line of acoustic signalling equipment.

NavCom Inc. is located at 9 Brandywine St., Deer Park, N.Y. 11729. Collins Marine Corp. is located at Pier 32, San Francisco, Calif. 94105. Maricon Instruments Inc. is located at 1131 Lafayette Street, Gretna, La. 70053.

Foreign Coal Buyers Register Published By Commerce Dept.

The growing importance of coal exports is highlighted in a recently published U.S. Commerce Department trade list of foreign buyers and dealers interested in purchasing the fuel.

Compiled by the International Trade Administration, the 156-page booklet identifies 2,348 agents, distributors, general importers, and end-users of coal. It also includes a list of 66 coal import leads.

The booklet, covering buyers in 98 countries, lists the address, the name and title of an officer, the year the firm was established, the relative size, and number of employees, the telephone number, the telex number, the cable address, and codes indicating the range of products or services of the firm.

The booklet costs $5 prepaid from the U.S. Department of Commerce, Room 1312, Washington, D.C. 20230, telephone (202) 377-2988. It is also available from Commerce Department district offices.

New Epoxy Coating From Devoe/Prufcoat —Literature Available

A new epoxy polyamide coating with the corrosion resistance of coal tar epoxy, but without its application or toxicity problems, has been introduced recently by Devoe/Prufcoat, Devoe & Raynolds Co., a division of Grow Group, Inc.

Known as CHEM-TAR™ High Build Epoxy Coating, it may be applied wherever conventional coal tar epoxy is specified and gives steel and masonry excellent abrasion and corrosion resistance to sewage, oil, alkali, dilute acids, fresh water, and salt water.

According to the company, CHEM-TAR Epoxy is easily applied and has an extended recoat time of up to seven days for immersion service, and up to 60 days in non-immersion service. It will cure effectively at temperatures down to 40° F, and features a high film build (8.0 mils dry film thickness). Other advantages include fewer health hazards because of low toxicity levels and excellent package stability for more than one year.

Steel surface preparation requires a near white blast (SSPC-SP10) in severely corrosive areas, and a commercial blast (SSPC-SP-6) in moderately corrosive areas. Normally applied by spray application in two coats at 8.0 mils dry per coat, CHEM-TAR Epoxy is self-priming on most surfaces.

For more information,

Write 41 on Reader Service Card

Duraline Introduces New Portable Heaters, Blowers —Literature Available

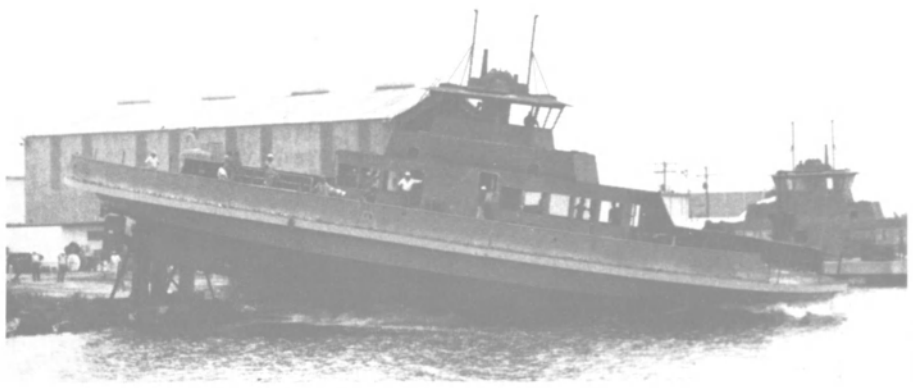
Duraline, of Islip, N.Y., a division of J.B. Nottingham Co., Inc., has introduced two new units on the market: model V500A portable ventilation blower and model V20KW portable heater attachment.

Duraline's V500A blower has two unique features: all-aluminum construction and a low weight of 48 pounds. It is the only unit of its kind with a rated capacity of 700 cfm. This unit includes a 1.5-hp, 230/460-volt, 3-phase, dust-tight motor and starter, internally wired. It's light enough to be hand-carried, well suited for ventilating hard-to-reach locations.

Duraline's V20KW heater, designed specifically for use with the V500A blower, is also lightweight (58 pounds) and easily hand-carried. Combined, the two units are ideal for drying out tanks and compartments. Each unit has its own switch for overload protection, and they need only be field connected. Overall dimensions are 28 inches long by 16 inches wide by 24 inches high.

For more information,

Write 22 on Reader Service Card



Caterpillar powered Eagle is launched at Atlantic Marine.

Two Ferries From Atlantic Marine For Service In Biscayne Bay

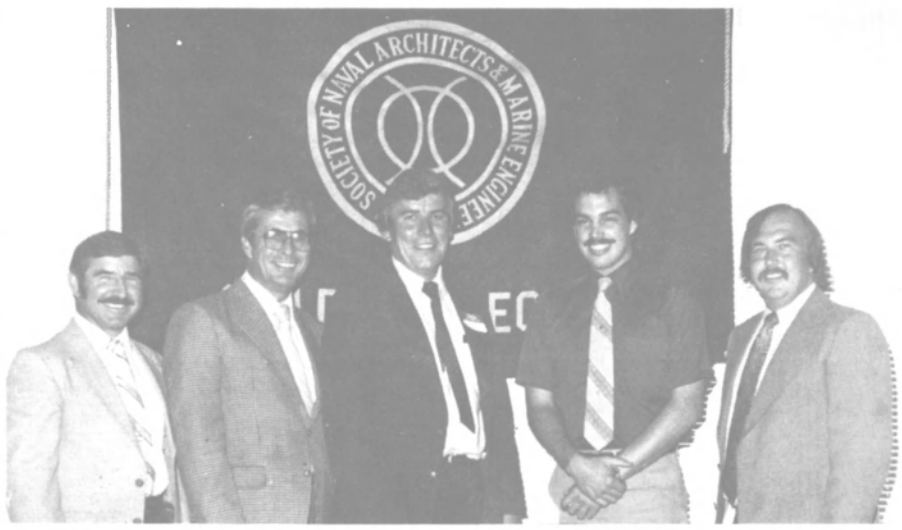
Atlantic Marine, Inc. of Ft. George Island, Fla., is completing the outfitting of two 75-ton, double-ender ferryboats for Island Developers, Miami.

The Pelican was delivered in October, while the Eagle has been launched and will be delivered before the end of the year. The 120-foot by 46-foot by 12-foot ferries are powered by two Caterpillar D-353 engines and are designed to carry 22 vehicles, 100 passengers, and a crew of three. Lounge seating capacity is 32 persons.

The boats will be used for transportation to and from Fisher Island in Biscayne Bay.

Atlantic Marine, Inc., located at the intersection of the St. Johns River and the Intracoastal Waterway, was established in 1964. The Jacksonville area shipyard constructs steel-hulled fishing boats, workboats, and specialized vessels for offshore and river use.

PELICAN/EAGLE	
Main Propulsion	(2) Caterpillar D-353
Propeller	Columbian Bronze Corp.
Shaft	J.M. Tull Metals Co. (tail) A.M. Castle (line)
Bearings	Copper Bearing Co.
Generator	Detroit Diesel
Panel	Con-Select
Engine Controls	Mathers Controls, Inc.
Steering	Wagner Hydraulic
Engine Monitors	National Marine Service
Pumps	Burks, Hydromatic, Sperry Vickers
Air Compressors	Quincy
Coatings	International Paint
Radar	ITT Decca
Electronics	VHF Radio/Raytheon



The officers and guests at the SNAME San Diego Section meeting, from left to right: **Robert Wernli**, author; **Don MacDonough**, chairman; **Kurt Schmidt**, vice chairman; **Craig Bunge**, executive committee member, and **Steven Donley**, secretary-treasurer.

SNAME San Diego Section Hears Paper On Unmanned Submersibles

The San Diego Section of The Society of Naval Architects and Marine Engineers began its 1981-82 program with a presentation on unmanned marine vehicles. Thirty members and guests of SNAME met at the Half Moon Inn in San Diego to hear **Robert Wernli** of the Naval Ocean Systems Center discuss his paper, "Experience with an Unmanned Vehicle-Based Recovery System."

The paper and presentation surveyed various types of unmanned and remotely controlled submersibles and focused on the manipulative and vehicle positioning features of the "Work Systems Package/Pontoon Implacement Vehicle." Through practical test programs, Mr. **Wernli** and his colleagues at NOSC have formed a technology base for continued development of these remotely controlled submerged vehicles. NOSC's design philosophy for these machines also was discussed. The goal of their design effort is remotely controlled systems, "that are as simple and rugged as the ocean itself."

Kockumation Names Three Agents In U.S. For Sales And Service

Kockumation AB of Malmo, Sweden, a world leader in the production and marketing of marine electronic equipment, recently announced the firm is now represented by three separate agents for coast-to-coast sales and service in the U.S.

NavCom Inc. of New York represents Kockumation on the East Coast and in the Great Lakes region. Collins Marine Corp. of San Francisco is the representative on the West Coast. On the Gulf Coast, Maricon Instruments of New Orleans is the representative.

All three agents will supply and service the entire range of Kockumation products, including Loadmaster cargo calculation instruments, Levelmaster systems for gauging tank levels and cargo volumes, Steermaster systems for precision maneuvering and the Tyfon line of acoustic signalling equipment.

NavCom Inc. is located at 9 Brandywine St., Deer Park, N.Y. 11729. Collins Marine Corp. is located at Pier 32, San Francisco, Calif. 94105. Maricon Instruments Inc. is located at 1131 Lafayette Street, Gretna, La. 70053.

Uniflite Awarded Contract For Two Army Patrol Craft

Uniflite, Inc., fiberglass boat manufacturer headquartered in Bellingham, Wash., has been awarded a $385,560 contract by the U.S. Army's Aberdeen Proving Grounds for the construction of two 42-foot fiberglass patrol boats with an option to purchase three more vessels at a later date, according to a recent announcement by **James J. Doud Jr.**, president.

Joseph Herz Named Chief Engineer At ABS Offshore Dept.

The American Bureau of Shipping (ABS) has appointed **Joseph E. Herz** chief offshore engineer in the offshore installation department. Mr. **Herz** has had extensive experience in the structural analysis and design of merchant ships, missile structures, and special heavy machinery.

An offshore installation may be used either as a platform to support drilling and production facilities, as an electric power generation station, or as the major outlet for an undersea pipeline system. As of August 30, 1981, ABS had classed seven such installations, and 16 additional installations were under contract or were being built to ABS classification. ABS also has certified 14 such installations with 18 additional installations under contract.

Publish Zidell Catalogue Of DSI Forged Steel Valves —Copies Available

A new 16-page comprehensive catalog (202-A) of DSI forged steel valves has been published by the Valve Division of Zidell Explorations, Inc. of Portland, Ore. The product line, manufactured in Bergamo, Italy, is in strict accord with ASTM, ANSI, API, and MSS specifications.

The catalog is cross-referenced and contains size charts and detailed dimensional drawings of each type of valve. A PSI chart (pressure temperature) and material specifications for gate, globe, and check valves are also included.

The letters DSI, which are forged into each valve body, represent the name Duroseal International, an operating service of Zidell Explorations, Inc.

For a free copy of the easy-to-use catalog from Zidell,

Write 34 on Reader Service Card

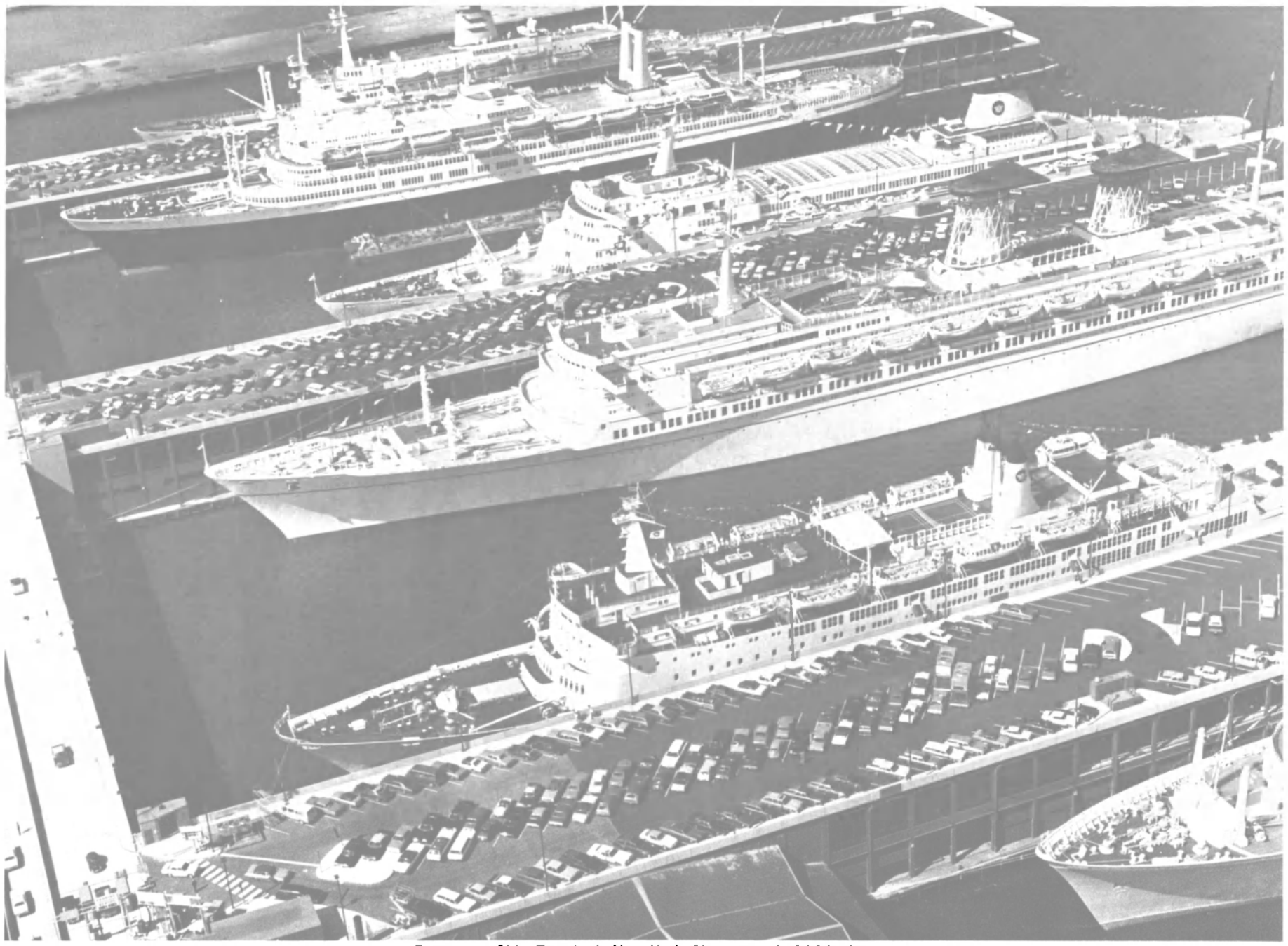
MarAd Awards Grant To Develop Computerized Vessel Locator System

The Maritime Administration announced the award of a cooperative agreement of $97,989 to the Marine Exchange of the San Francisco Bay Region as a first step in the development and demonstration of a computerized system which would track and, in an emergency, provide the location of all ships in or scheduled to arrive or depart U.S. ports.

The management information system would support a nationwide vessel in-port locator system known as VIPLOC. By storing data on vessels scheduled to arrive and depart U.S. ports, it would aid in MarAd's decision-making process concerning ship resource utilization at the start of a national emergency.

Thomas McCarthy and Associates of Annapolis, Md., under a subcontract to the San Francisco Marine Exchange, will design and implement the VIPLOC computer application software and documentation, including a cost-benefit analysis. The Marine Exchange of the San Francisco Bay Region will spend an additional $30,000 for the acquisition of the computer hardware connected with the installation of the system.

The project is expected to be completed by June 30, 1982. Following its completion, a report on the application software and documentation will be made available to the participants and members of the National Association of Marine Exchanges. Adaptation costs would be borne by the user.



Passenger Ship Terminal, New York City, site of ISOSO '81.

ISOSO '81

An International Symposium To Assist Ship Operators To Improve Operations

"International Symposium on Ship Operations (ISOSO '81) is a 'Catch 22' title, deliberately. There are so many factors that go into the safe, profitable and efficient operations of a ship on the high seas that every aspect must be scrutinized before every conference program is put together," stated Capt. **J.C. Musser,** Ship Analytics, Inc., New York, N.Y., and general chairman for ISOSO '81.

The International Symposium on Ship Operations is an annual conference sponsored by The Maritime Association of the Port of New York, American Institute of Merchant Shipping, Council of American Flag Ship Operators, The Hydrographic Society and The Council of American Master Mariners. It is being held at the New York City Passenger Terminal on the Hudson River from November 16 to November 19.

The 1981 conference marks a significant expansion from previous Symposiums in two directions. First, an entire maritime discipline has been added to the affair when the Hydrographic Society became an official ISOSO sponsor. This group, while small in numbers, is large in influence in almost every other phase of maritime life.

The second significant expansion was the decision to move the Symposium to the New York City Passenger Terminal. With the additional space available there will be many more exhibits than were possible in previous years. Over

110 firms have reserved booth spaces to exhibit their marine-oriented equipment. There also is room to run concurrent conference sessions which translate into more papers. The other advantages of this location are that there are conference dining areas, cocktail bars, conferees' lounge and reserved parking on the upper level.

A further enhancement of the conference due to location is the addition of in-water exhibits and demonstrations.

Monday, November 16, has been designated International Shipping Issues Policy Day with **Phillip Loree,** president, Federation of American Controlled Shipping, serving as chairman. The ISOSO International Day will address questions such as: What should U.S. maritime policy be regarding the U.S.-flag liner fleet; regarding the U.S.-flag bulk fleet, and regarding the U.S. effective control fleet. The second set of issues to be discussed are based on the questions: Is it viable in the real world to have bulk cargo sharing and is it viable in the real world to have the UNCTAD liner code. The morning session will get underway at 8:45 a.m. The afternoon session will adjourn at 4:50 p.m.

The next three days, November 17 through 19 will be given over to the presentation of papers and panel discussions. The subject matter for these three days of the Symposium was generated by requests from people within the maritime industry. For example, purchasing agents and others requested papers dealing with shipboard inventory systems, jointly supported spare-part warehousing, computerized spare-part inventory and preventive maintenance scheduling.

The papers to be presented will cover a wide variety of subjects, including navigation, communications, hydrography, training and certification, economics, fuel consumption and computers.

Panels on broad subjects will give more viewpoints a chance to be heard. One such panel will deal with ship board computers, another will examine the changing role of both officers and men on board seagoing vessels, and yet another will deal with new safety requirements.

There will be 19 separate conference sessions. The final sessions of each of the three days will be used for a significant in-water demonstration that relates to a final paper presented for that day.

Papers

The following listing is a partial list of papers by panels to be presented:

Panel on Human Relations within the Industry.

"Human Factors Aboard Ships —Not Quite the Mystery It Was" by **John S. Gardenier,** Commandant (G-DMT/54) USCG, and Dr. **Thomas Hammel,** Ship Analytics, Inc.

"The changing Role of the Ship's Officer" by **William T. McMullen,** Department of Nautical Science, U.S. Merchant Marine Academy.

"The Master as Manager" by **Per Sundby,** Texaco Norway A/S.

"A Survey of Shipboard Management Systems in Relation to Maritime Labor and the Maritime Environment" by Dr. **Henry F. Trutneff,** International Organization of Masters, Mates and Pilots.

"The Human Element — Seafarer's Rights" by **Paul D. Chapman,** Seamen's Church Institute.

Panel on Training with Emphasis on Simulators.

"The Role and Responsibility of Industry and Organized Labor in Training and Education (A View from Overseas)" by **K.C.**

(continued on page 94)

ISOSO '81

(continued from page 93)

Reid, The Alexandria Towing Co. (London) Ltd., and **William Rich,** International Organization of Masters, Mates and Pilots.

"A Modern Engine Room Simulation Concept" by **O.R. Bjoeness,** Norcontrol, Norway.

"The Application of Bridge Simulation for the Training of Tugboat Operations: A Developmental Program" by Dr. **K.E. Williams, D.C. Buchanan** and Capt. **R. DiNapoli,** Ship Analytics, Inc.

"Simulator Training and Marine Engineers" by Capt. **Douglas A. Hard,** Marine Safety International.

"Marine Simulation on the Job Training Substitute" by **Max Carpenter,** Maritime Institute of Technology & Graduate Studies.

"Training of Personnel for Western River Tugboats" by **Thomas Tooker,** National River Academy.

"Qualifications and Training for Workboat Personnel" by **V.J. Giannelloni,** Louisiana Petroleum Institute.

Panel on Economics & Logistics of Ship Supply & Purchasing.

"Profit Achievement by Preventive Maintenance" by **Richard J. Deely,** Marine Maintenance Systems.

"STIMS — A Shipboard Inventory Management System" by **James H. Keyte,** Sun Transport, Inc.

Panel on Navigation and Operations.

"Ocean Current Navigation Study Completed" by **James W. Feeney,** Sippcan Corporation.

"World-Wide Navigational Warning System" by Capt. **E. Ayres,** USN (ret.) and **John Lyall,** Defense Mapping Agency.

"The Mariners Requirements for Marine Environmental Services" by Rear Adm. **E.D. Stanley Jr.,** The Sea Use Council.

"A Review of Current USCG Regulations on Navigation and Communication Equipment" by **R.E. Negron,** Electro-Nav, Inc.

"Computers and Communications on Ships" by **Charles S. Carney,** Nav-Com, Inc.

"Experience with Harbor and Harbor Entrance Loran-C Guidance Equipment" by Comdr. **J.F. Roeber,** USCG.

Panel on Communications.

"INMARSAT Preparing To Commence Operation" by **Guntis Berzins,** INMARSAT.

"Challenges and Responses for INMARSAT System — Users Viewpoints on Telecommunications, Navigation and Distress Applications" by **Lawrence Kilty,** L.R. Kilty & Company.

"SATCOM—A Tool for Saving Operational Cost" by **Gunnar Kris Gangsaas,** Electro-Nav, Inc.

Panel on Hydrography.

"Status of Navigational Charts World Wide" by Commodore **A.H. Cooper,** RAN (ret.), Bureau Hydrographique International.

"Hydrography in the Management of the Exclusive Economic Zone" by **Tom McCullock,** Hydrographic Commission Federation, International des Geometres.

"NOS Service and Support Ship Operations" by Dr. **Thomas E. Pyle,** National Ocean Survey.

"Research and Development Efforts in Remotely Sensed Hydrographic Data Collection" by Lt. Comdr. **Wayne S. Shiver,** USN, Defense Mapping Agency, Department of Defense.

"All Weather Precise Piloting Options for U.S. Ports" by **J.T. Montonye,** USCG, and **E.F. Grenaker.**

Panel on Safety.

"Revision of SOLAS Chapter

(continued on page 96)

When You Need Reliable Equipment and Service, Call On Schnitzer-Levin Marine Company.

Call us for diesel engines & parts

- Full range of diesel engines, from 25–45,000 HP
- Allis-Chalmers factory-authorized diesel engines, service & parts
- EMD engines — remanufactured
- Mitsubishi UEC engines
- Akasaka diesel engines

Count on us for oil purifiers

- Mitsubishi KK oil purifiers
  Factory-authorized sales, service & parts

Call on our expert technical direction— anywhere

- For machinery problems, we can serve you on location — wherever you happen to be.
- We employ only fully qualified service engineers.
- Our technical services are in such demand that we have doubled our staff in one year to keep abreast.

Check out our complete line of remanufactured marine equipment

- Turbines
- Turbine Generators & Parts
- Pumps
- Compressors
- Valves
- Axial Fans
- Evaporators
- Motors & Controls
- Floating Equipment — Ships & Barges
- Anchors & Chain
- Winches & Windlasses

To maintain our high standards of quality control and to lower the cost to you, we use our own machine shop in San Francisco for repairs and reconditioning work.

Schnitzer-Levin Marine Company

San Francisco
445 Littlefield Avenue
Box 2445
South San Francisco, CA 94080
(415) 761-0993
TWX 910-371-7248

New York
(212) 832-3320
TWX 710-581-2342

Portland
(503) 224-9900
TELEX/WU 36-0144

Singapore
An Affiliated Company
Schnitzer-Levin
Singapore PTE, LTD.
Unit 802, Marina House
Shenton Way, Singapore 0207
Telephone 2224541-3
TELEX RS 23032 SAISIN

ISOSO '81

(continued from page 94)

III — Lifesaving" by Capt. **W.A. Mayberry,** Offshore Marine Service Association.

"Safety: Tanker Explosions" by **Jeremy M.S. Smith,** Liberian Shipowners' Council Ltd.

"Contingency Planning for Maritime Accidents" by **W.F. Searle Jr.,** Searle Consortium, Ltd.

Panel on Maintenance and Repair.

"Electronic Analyzers and Diesel Engines" by **R.R. Raymer,** Cooper Energy Services.

"Annual Contracts—A Way to Decrease and Control Ship Maintenance Costs" by **Frederick A. Ganter,** Norfolk Shipbuilding & Drydock Corporation.

"A New Era of Digital Monitoring of Machinery Equipment" by **Peter Kempers,** Electro-Nav, Inc.

Panel on Problems of Propulsion.

"Variations in Fuel Costs as a Function of at Sea Weather Factors" by **Austin L. Dooley,** Ocean Routes, Inc.

"Results of Research on the Use of Residual Fuel in Diesel Engines" by **S. Sprague,** Ocean Fleets, Ltd.

In summary, ISOSO '81 provides the true, industry-wide representation of subject material by qualified persons within the industry. The Symposium will provide three days of exposure to innovations, new ideas, new methods and refinements of old ones.

ISOSO EXHIBITORS

Company	Booth No.
Admiral Marine	110
AGA Navigation Aids Ltd.	85
Alden	106
Alfred Conhagen	87
Alnor Instrument Co.	72
American Abrasive Metals Co.	123
AMT Inc.	176
Anschuetz of America	40
Applied Marine	35
Are Manufacturing	89
Argo	71
Ariel Int.	6
ASEA	166
A S Skarpenord	174
Atco Marine	188
Atlantic Coast Enterprises	73
Atlantic Cordage	102
Atlantic Steamers Supply	184
Barish Pumps	162
Battery Travel	66
Beemer Engineering	144
Beldam Co. (England)	184
Borg Warner	130
Bowditch Navigation	45
Brewer-Titchener Corp.	50
Bull & Roberts	153
C.H. Hendry	160
C.S.I.	16
Camar Corp.	131-132
Campbell Chain Co.	80
Candia Shipping	103
Chugoku Paint Co. (Japan)	77
Clare-Veson	67
Comsat General	1
Consol Paint	122
Cooper Energy System	76
Cornwall Personnel	68
Defense Mapping Agency	60
Delta Marine	72
Disco Inc.	168
Drackett Professional Products	128
Electrisk Bureau	17
Electro Nav	14
Emp. St. Corp. Health Services	140
Endeco Inc.	8
Energy Audit Corp.	80
Environmental Chemicals	7
Environmental Res. & Tech.	105
Fairplay	186
G & B Associates	31

$C11-Million Naval Order To Burrard Yarrows Corp.

Burrard Yarrows Corporation of Vancouver, Canada's largest ship repairer, has won an 11-million Canadian-dollar contract to carry out a modernization refit on the frigate HMCS Mackenzie.

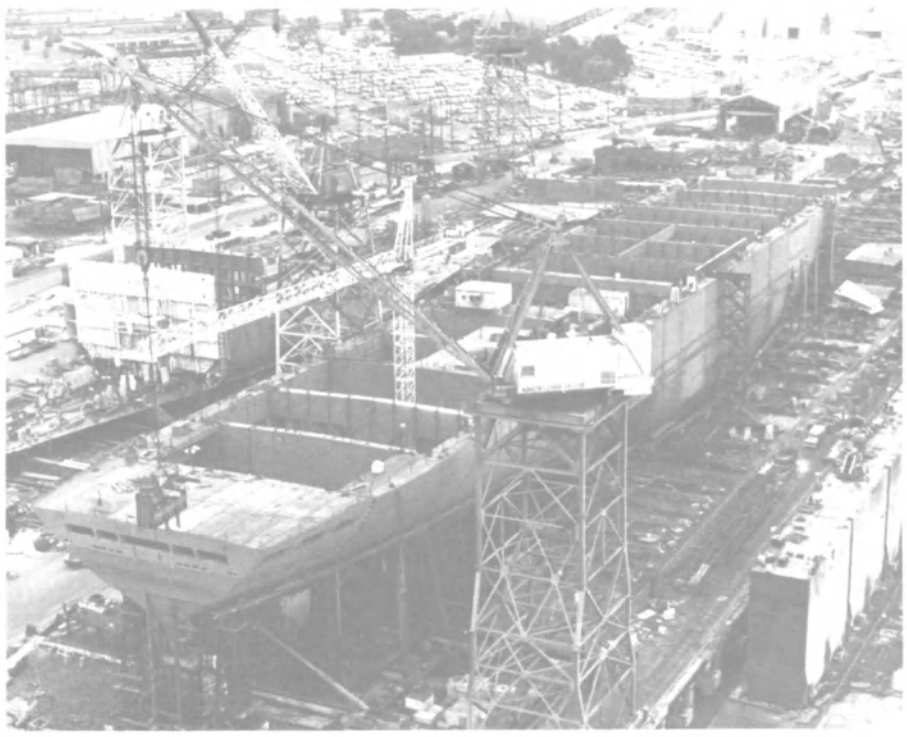
This is the first time a major refit of a Canadian warship has been entrusted to a private dockyard on Canada's west coast.

The HMCS Mackenzie was lead ship in a class of four frigates variously commissioned in 1961 and 1962. The then Burrard Dry Dock Company Limited, now an integral part of Burrard Yarrows Corporation, built the HMCS Yukon, a sister ship to the HMCS Mackenzie.

Jean-Jacques Blais, Federal Minister of Supply and Services for the Government of Canada, who signed the contract, indicated that there is a good possibility that four additional contracts for similar work and of similar value will be placed with civilian yards on the west coast over the next five years.

The Mackenzie refit, which is being undertaken by Burrard Yarrows Victoria division, is scheduled for completion early in December 1981.

Largest Containership To Be Built In U.S. Is Named President Lincoln



The largest U.S.-built containership President Lincoln under construction at Avondale Shipyards, New Orleans, for American President Lines.

American President Lines (APL), Oakland, Calif., has announced that the first of its three new containerships, the largest ever built in the U.S. and the first to be diesel propelled, will be named the President Lincoln. The ship will be christened and launched on December 19, 1981, at Avondale Shipyards, New Orleans, La., according to **W.B. Seaton**, APL's president.

The other two containerships will be named the President Washington and the President Monroe.

Each ship will be 860 feet long and will have the capacity to carry the equivalent of 2,500 twenty-foot containers, including 400 forty-foot refrigerated containers.

The ships will be powered by large, fuel efficient Sulzer low-speed marine diesel engines assembled in the U.S. The Sulzer engines were built by Allis-Chalmers Corp., Milwaukee, Wis.

APL is a wholly owned subsidiary of San Francisco-based Natomas Company, the energy, transportation, and real estate concern.

Ore/Oil Carrier Purchased By Marine Transport Lines From Italian Company

Marine Transport Lines, Inc., New York, N.Y., announced recently that it had purchased from Nereide SpA. of Naples, Italy, a 134,000-dwt ore/oil carrier for $13 million. The vessel, to be renamed Oswego Prima, incorporates the latest safety and anti-pollution systems including inert gas and crude oil washing systems.

The ship is specially designed for the transportation of crude petroleum in bulk as well as heavy cargoes such as iron ore. The vessel has been delivered under a long term time charter to Achille Lauro Lines of Italy.

Marine Transport Lines, a subsidiary of GATX Corporation, Chicago, charters and operates oceangoing ships primarily on a medium and long-term basis. Including this acquisition, it owns 17 oceangoing vessels and operates an additional 19 vessels for others.

Award Dillingham Shipyard $3-Million Contract For USS Beaufort Overhaul

Dillingham Shipyard, a division of Dillingham Corporation, Honolulu, Hawaii, was awarded a $3,247,700 firm fixed price contract for the scheduled topside overhaul of the USS Beaufort (ATS 2). The Supervisor of Shipbuilding, Conversion and Repair, Honolulu, Hawaii, is the contracting activity. (N65202-70-C-0001)

American Iron And Steel Institute Publishes Text On Corrosion Protection

American Iron and Steel Institute, Washington, D.C., recently published a new text, "Handbook of Corrosion Protection for Steel Pile Structures in Marine Environments."

Authored by corrosion engineers and steel pile specialists, the 260-page book provides an in-depth study of the problems and remedies associated with corrosion of steel piles. Discussions include damage assessment, rehabilitation, corrosion control, and cost analysis.

Ten chapters in the new book cover corrosion fundamentals, economics of corrosion control, design and fabrication practices, steel selection, jacketing and coatings, anodic and cathodic protection, and combination methods for corrosion control. Four example problems are explained in detail.

Appendices include properties and dimensions of H-piles, sheet piling, and pipe piles; ASTM Standard Specifications for steels used in pile structures; corrosion testing and steel behavior in marine environments; seawater properties; and a glossary of corrosion terms.

The handbook is available from American Iron and Steel Institute, 1000 16th Street, N.W., Washington, D.C. 20036. Price: $9.

EPSCO And Datamarine Sign $1.6M OEM Agreement For Loran-C Receivers

EPSCO, Incorporated of Westwood, Mass., and Datamarine International, Inc. of Pocasset, recently announced the signing of an O.E.M. agreement for $1.6 million whereby Datamarine will purchase from EPSCO microprocessor-based loran C navigation receivers, manufactured to their specifications, over a 12-month period.

Mr. Coffin, president and chief executive officer of EPSCO, stated he is extremely pleased with the signing of the agreement as Datamarine is a leading domestic manufacturer of marine instruments which are all known for their high quality and reliability.

This O.E.M. agreement provides Datamarine with a highly reliable microprocessor-based loran C receiver which has state-of-the-art design at a cost effective price.

With the signing of the agreement, EPSCO's net sales backlog now exceed $7.5 million.

EPSCO, Inc. designs and manufactures marine navigation equipment, avionic systems, microwave instrumentation, and special test and simulation equipment for military and commercial markets.

Hydranautics Brochure Describes Shipyard Transfer Systems

Shipyard Systems by Hydranautics, an eight-page, four-color illustrated brochure, describes the company's heavy-load moving systems for shipbuilding and repair. Systems described include ship lift systems, wheeled translation systems, skidding translation systems, drydock transfer systems, and walking translation systems.

The brochure describes how Hydranautics products operate to drydock and launch ships from an elevator, translate ships or ship sections throughout the yard, extrude ships under construction down shipways, and transfer ships into and out of floating drydocks.

For a free copy of the Hydranautics brochure,

Write 55 on Reader Service Card

Blenkhorn Named A VP At Bath Iron Works

John F. Sullivan Jr., chairman and chief executive officer of Bath Iron Works, Bath, Maine, announced the appointment of **James M. Blenkhorn Jr.** as vice president of marketing.

Mr. **Blenkhorn** is rejoining Bath Iron Works after leaving in February 1979 to serve first as group vice president of Sun Shipbuilding Corporation, Chester, Pa., and then as president of Equitable Shipyards, Inc., New Orleans, La.

He originally joined BIW in August 1969 as ship superintendent for construction of three West German destroyers. He then held a series of executive positions, concluding as manager of commercial new construction and Navy overhaul.

A graduate of the Maine Maritime Academy and the Naval Post Graduate School, he sailed as a licensed engineer in the U.S. merchant marine. He then served ten years in the U.S. Navy as an engineering officer in destroyers and cruisers, and on command staffs. He currently is a captain in the U.S. Navy Reserve.

Blume To Install Elinca System On 4 Sedco Rigs

Blume Worldwide Services, Scarsdale, N.Y., have been awarded contracts for Elinca marine growth and corrosion control systems to be installed on four semi-submersible drilling rigs under construction for Sedco Inc., Dallas, Texas. The first is for the SEDCO 710 under construction at Mitsui Shipbuilding, Shiba, Japan, the others are for the SEDCO 711, SEDCO 712 and SEDCO 714 at Hyundai Heavy Industries of Korea.

The Elinca System is designed to control marine growth and corrosion in the rigs' main engine cooling systems and ballast systems. Developed and manufactured in the U.K., Elinca uses specially alloyed copper (anti-foulant) and aluminum (flocculant) anodes installed in the seawater intake lines. Slow, controlled dissolution of the anodes results in the formation of a cupro-aluminum floc which is distributed throughout the system by the flow of treated water. This results in deposition of the protective cupro-aluminum film on all surfaces, thus giving complete marine growth and corrosion protection throughout the rig's seawater service systems.

To obtain details and free literature on the Elinca Anti-Fouling System,

Write 48 on Reader Service Card

Navy Extends Use Of MARISAT Satellite Service An Additional Year

COMSAT General Corporation announced recently that the U.S. Navy has extended its contract for use of each of the three satellites in the MARISAT System for an additional year. The renewal provides an option for the following year as well. The provision of this additional service is valued at about $16 million per year.

The MARISAT System began providing communications service to the Navy in the Atlantic region in March 1976, in the Pacific region in June 1976, and in the Indian region in January 1977. The Navy leases UHF capacity in all three MARISAT satellites for fleet communications between its own fixed and mobile terminals.

The MARISAT System, developed and operated by COMSAT General, is the world's first maritime satellite communications system. Each of the three MARISAT satellites operates at three different frequencies: UHF for Navy service; and L-Band and C-Band for the commercial shipping and offshore industries. Services to the international maritime market include telephone, telex, facsimile, and data communications.

Andrew A. Sallean Joins Bretagne ACB Corporation As Vice President

Andrew A. Sallean

Andrew A. Sallean has joined Bretagne ACB Corporation, New Orleans, La., as vice president of the newly formed department of naval architecture.

ACB is a marine equipment design and manufacturing company specializing in articulated and integrated tug/barge hydraulic connection systems. The department offers complete vessel design support for tug/barge projects as well as general naval architectural services to the industry. ACB connection systems are ABS and USCG certified and have been installed on 12 tug/barges operating worldwide, including a recently delivered 15,000-hp, 50,000-dwt tanker unit.

Prior to joining ACB, Mr. **Sallean** was vice president of Breit and Garcia, Inc., where he participated in a wide variety of naval architectural and marine engineering projects.

SD-14 Contract Awarded To Smith's Dock Co., U.K.

Two SD-14 general cargo ships have been ordered from Smith's Dock Co., Middlesbrough, England, a subsidiary of British Shipbuilding, by Carrian Shipping, Hong Kong. The order is worth about $28 million. The anticipated delivery date is in the second half of 1982.

Navy Awards EAC A Contract To Inspect Carrier Fleet Equipment

Energy Audit Corporation, Montclair, N.J., an infrared scanning inspection company, has been awarded a contract by the U.S. Navy to perform infrared electrical and mechanical equipment inspections on all of the aircraft carriers in the United States fleet.

Steven L. Miller, director of marketing, reports that this is the first time in the history of the Department of the Navy that an entire fleet inspection contract has been awarded. "EAC personnel have performed infrared inspections for over five years, and we are proud that the Navy has selected EAC for this vital fire-prevention and preventive maintenance contract."

EAC engineers board an ocean-going vessel and using highly sophisticated ACA Thermovision infrared cameras, are able to locate overheating conditions in all major electrical and mechanical equipment, including switch boards, power and distribution panels, buses, motor controllers and motors.

Overheating is the first indication of a loose or deteriorated electrical connection, poorly lubricated motor bearing, defective motor winding or overloaded circuit. Using the infrared camera to measure the temperature of the "hot spot" and to take an instant infrared picture, EAC engineers can accurately predict an impending electrical fire or failure.

Infrared inspections have successfully been used on oil tankers, containerships and all other types of conventional and nuclear-powered vessels. It is a proven maintenance and fire safety procedure.

For further information on EAC's services,

Write 52 on Reader Service Card

$3.2-Million Navy Order For Plating Facility Work At Charleston Yard

J.N. Futia Company, Inc., Albany, N.Y., has been awarded a $3,232,000 fixed price contract for alterations to the plating facility at the Naval Shipyard, Charleston, S.C., following competition in which four bids were received. The Naval Facilities Engineering Command, Southern Division, is the contracting agency.

Marconi Marine Awarded Eight-Ship Communications Equipment Contract

The Marconi International Marine Company Ltd., A GEC-Marconi Electronics company of Chelmsford, England, has received orders for a range of communications equipment to be installed on eight vessels being built in Gdansk, Poland, for the Pakistan National Shipping Corporation.

The vessels — Nawabshah, Khaipur, Sibi, Zhab, Lasbela, Hazara, Gujrat, and Jhang—are general cargo ships of 15,000 dwt.

Each ship is to be fitted by Marconi Marine with a main radio station comprising a Conqueror HS main receiver, Salvor 4 reserve transmitter, Apollo main receiver, and Sentinel reserve receiver. Further main station equipment includes Autokey 2, Lodestar IIID direction finder, Argonaut SS and Nautilus VHF radiotelephones, Forecaster K weather facsimile equipment, and Survivor II lifeboat sets. The watchkeeping receivers are Lifeguard 3 on 500 kHz and Warden 4 on 2,182 kHz respectively. A Console 2, to contain much of this equipment, will also be provided.

Marconi Marine will also supply each ship with a Seahorse echosounder and two transducers. Ancillary equipment includes a telephone terminal unit and a range of mast transmitter aerials and receiver whips.

Gems' Bent Stem Level Switches Available For Tank Side Mounting

Gems Sensors Division of Transamerica Delaval, Plainville, Conn., can now offer level switches with an almost unlimited range of stem mounting configurations.

These versatile switches are provided as both single or multi-station with either threaded or flanged connections. They provide high, low, or intermediate level alarm with a single mounting. In addition to the many unusual stem shapes, they can be supplied with 90° elbows, with junction boxes, with either Buna or stainless-steel floats, and with SPST or SPDT switch elements.

All the switches, regardless of stem configuration, incorporate the same hermetically sealed reed switch and magnetic float design that has provided repeatability and dependability for more than 25 years.

For more information,

Write 31 on Reader Service Card

Joint Venture Formed To Market Shipboard Computers For Loading

A joint venture to supply individually programmed shipboard desk-top computers was announced recently by the firms of Anchor Marine of Liverpool and Marine Venture Ltd. of London, U.K. Under the arrangement, Anchor Marine will write programs and arrange the supply of hardware, while Marine Ventures will market the product worldwide.

The French classification society Bureau Veritas requires loading calculators on all bulk ships under its classification. Anchor Marine officials expect that ultimately such equipment will be standard on most vessels.

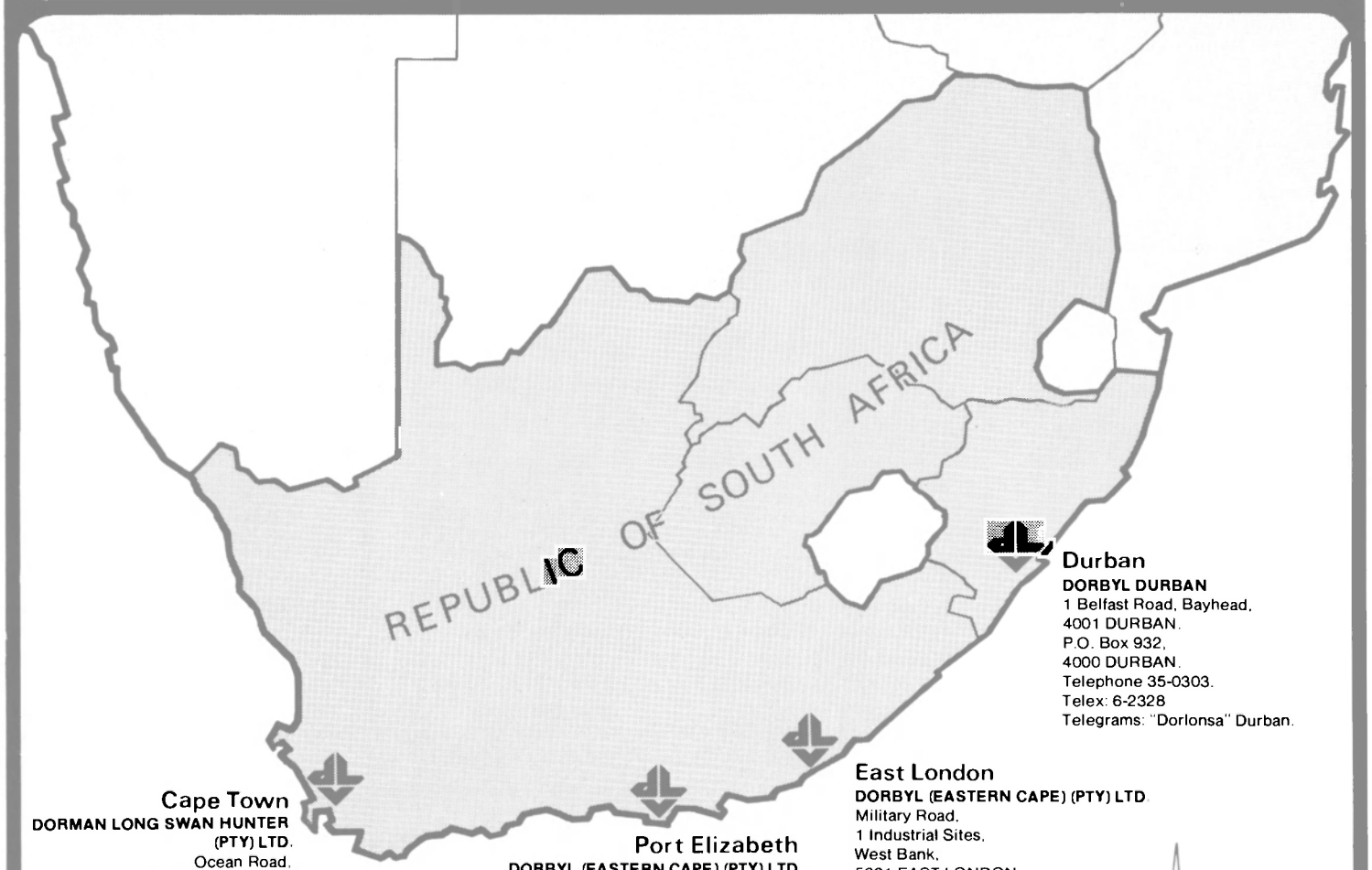
Marine Ventures Ltd. are a London-based marketing company with agents in the principal maritime countries and who specialize in antipollution equipment for ships including, in addition to loading computers, oily water separators, closed-tank gauging equipment, inert gas systems, and marine sanitation devices.

Marine Ventures Ltd. is represented in the United States by Schnitzer-Levin Marine Company of South San Francisco, Calif.

For full information on any of the above equipment,

Write 54 on Reader Service Card

The DORBYL GROUP and SAIP REPAIR in SOUTH AFRICA



Durban
DORBYL DURBAN
1 Belfast Road, Bayhead,
4001 DURBAN.
P.O. Box 932,
4000 DURBAN.
Telephone 35-0303.
Telex: 6-2328
Telegrams: "Dorlonsa" Durban.

Cape Town
DORMAN LONG SWAN HUNTER (PTY) LTD.
Ocean Road,
Table Bay Harbour,
Far End Sturrock Docks,
8001 CAPE TOWN.
P.O. Box 2616,
8000 CAPE TOWN.
Telephone 55-9471.
Telex: 57-7981.
Telegrams: "Dorlonsa" Cape Town.

Port Elizabeth
DORBYL (EASTERN CAPE) (PTY) LTD.
Grahamstown Road,
Deal Party Estate,
6001 PORT ELIZABETH.
P.O. Box 9010,
6012 PORT ELIZABETH.
Telephone 41-2331.
Telex: 74-7566.

East London
DORBYL (EASTERN CAPE) (PTY) LTD.
Military Road,
1 Industrial Sites,
West Bank,
5201 EAST LONDON.
P.O. Box 373,
5200 EAST LONDON.
Telephone 2-6667.
Telex: 7-5749.

FOR ELECTRICAL REPAIRS CONTACT R.S. TRIVETT & CO. (PTY.) LTD.

CAPE TOWN
cnr. Bridgewater and Powerful Streets,
PAARDEN EILAND 7405 CAPE TOWN.
P.O. Box 312, 7420 PAARDEN EILAND.
Telephone 51-3121.
Telex: 57-7262.
Telegrams: "Trivco — Paarden Eiland".

PORT ELIZABETH.
41 Patterson Road,
North End, 6001 PORT ELIZABETH.
P.O. Box 1603, 6000 PORT ELIZABETH.
Telephone 4-6364.
Telegrams: "Trivco — Port Elizabeth".

DURBAN.
2 Belfast Road,
Maydon Wharf,
Bayhead, 4001 DURBAN.
P.O. Box 29026, 4057 MAYDON WHARF.
Telephone 35-5331.
Telex: 6-2874.
Telegrams: "Trivco — Durban".

DORBYL LIMITED

Jonsson S. 3153.

PROFESSIONAL

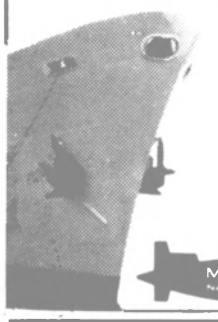
continued

PILOTAGE CONSULTANTS, INC.

Capt. Jim Stillwaggon
516-742-2467

P.O. Box 3
Atlantic Highlands, N.J.
07716

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS



New York City
350 Broadway
(212) 431-6900

San Diego
1007 Fifth Avenue
(714) 238-1300

San Francisco
657 Mission Street
(415) 777-0500

Charleston Heights, S. C.
3370 Rivers Avenue
(803) 744-1686

Arlington, Va.
2341 Jefferson Davis Highway
(703) 892-5680

M. ROSENBLATT & SON, INC.
NAVAL ARCHITECTS AND MARINE ENGINEERS

Seaworthy Engine Systems, Inc.
MARINE ENGINEERS
MAIN STREET
ESSEX, CONNECTICUT
06426
203/767-0937
TWX 7104580271

GEORGE G. SHARP, INC.
MARINE ENGINEERS
NAVAL ARCHITECTS
SYSTEMS ANALYSTS
MARINE SURVEYORS
100 Church Street
New York, N.Y. 10007
(212) 732-2800
Arlington, Virginia 22202
(703) 892-4000
Virginia Beach, Va. 23462
(804) 499-4125

T. W. SPAETGENS
TORSIONAL VIBRATION SPECIALISTS
OUR 33RD YEAR SERVING U.S. CLIENTS
156 W. 8TH AVE.
VANCOUVER, CANADA V5Y 1N2
(604) 879-2974 — TELEX 04-55188

R. A. STEARN INC.
NAVAL ARCHITECTS & MARINE ENGINEERS
253 N. 1st Avenue
Sturgeon Bay, WI 54235
Phone (414) 743-8282 TWX 910-270-1375

ROBERT L. STEVENS ASSOC. INC.
MARINE DRAFTING SERVICES
654 BEACON ST. BOSTON, MA 02215
(617) 262-8613

SEACOR
SYSTEMS ENGINEERING ASSOCIATES CORPORATION
Naval Architects
Marine Engineering
Systems Analysis
Combat Systems Training
Engineering Department Training
Total Ship Testing

CHERRY HILL
NEW JERSEY
(609) 429-7050

ARLINGTON
VIRGINIA
(703) 521-2977

VIRGINIA BEACH
VIRGINIA
(804) 425-3010

CHULA VISTA
CALIFORNIA
(714) 426-9538

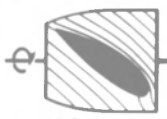
DOVER
NEW HAMPSHIRE
(603) 742-8770

CALL FOR FREE BROCHURE TO ANY OF THE ABOVE OFFICES

RICHARD R. TAUBLER, INC.
NAVAL ARCHITECTS & MARINE ENGINEERS
8 COLUMBIA ST. MILFORD, DEL. 19963
(302) 422-3371 OUR 25TH YEAR

Trans-International Marine Services Corp.

TIMSCO
MAINTENANCE MONITORING SYSTEMS
INVENTORY CONTROL SYSTEMS
622 Azalea Road
Mobile, Alabama 36609 205/666-7121



TOWNSEND
marine consultants
• TUGS
• TOWBOATS
• BARGES
18 CHURCH ST. | GEORGETOWN, CT 06829
TELEPHONE: 203-544-8110
TELEX: WUD 643-354

WÄDAM
WÄRTSILÄ ARCTIC DESIGN AND MARKETING
offers consulting services related to ships and structures in ice:
• model and ship testing in ice • feasibility studies
• studies on ice conditions and properties • design
The experience of Wartsila is based on the design and construction of more than 50 icebreakers (deliveries 3 400 — 36 000 shp) and ice-going cargo ships.
WÄDAM WÄRTSILÄ HELSINKI SHIPYARD
P.O.BOX 132, SF-00151 HELSINKI 15, FINLAND
TEL: 358-0-1941 TELEX: 12-1246 WHT SF

JAMES WEISBECK
MARINE SURVEYOR
WORLD WIDE SERVICE
RIVERS • LAKES • OCEAN
P.O. Box 52 — South Park, Avenue
Call: (716) 823-6617
Buffalo, New York — 14220

WESLEY D. WHEELER ASSOCIATES, LTD
INTERNATIONAL MARITIME CONSULTANTS
104 EAST 40 STREET, SUITE 207
NEW YORK, N.Y. 10016
CABLES WESWHEELER
126476 WHEELER NYK
ITT WDW 426040
RCA 236922 WDW
WUI WDW 666627
212-867 4760

WHEELER

DIPLOMATE IN NAVAL ARCHITECTURE AND MARINE ENGINEERING

THOMAS B. WILSON
NAVAL ARCHITECT & MARINE ENGINEER
920 North Avalon Blvd.
Wilmington, Ca. 90744 213/518-0940

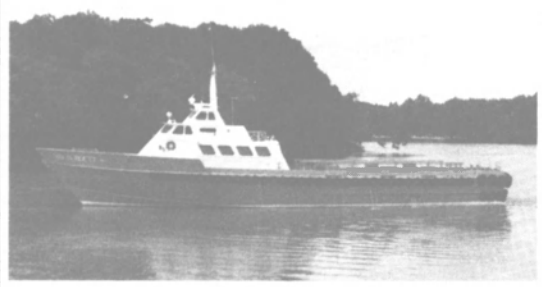
WIND SHIP®
WIND PROPULSION SYSTEMS
ANALYSIS - ENGINEERING - DESIGN
WIND SHIP DEVELOPMENT CORPORATION
P.O. BOX N, NORWELL, MA 02061 (617) 659-7946

WINK, Incorporated
CONSULTING ENGINEERS
Dock Damage Surveys
And
Design Of Marine Facilities
504/246-7924
8020 Mayo Blvd.
New Orleans, La. 70126

TOTAL EXPLOSIVE ENGINEERING
Professionals who use explosives with the velvet touch anywhere, anytime to separate cement or metals. Buildings, dams, bridges, grain elevators, industrial structures, foundations, and stacks dropped or disintegrated as they stand or directionalized falls. Offshore platforms and well removal, marine consultants, ship salvage or wrecking, diving, mining and trenching.

XPLO CORPORATION, 229 Fifth Street
P.O. Box 492, Gretna, Louisiana
(504) 362-8994 / TWX 810-951-6366.
A Tidewater Company

ALUMINUM CREWBOATS FOR IMMEDIATE DELIVERY



3 IN STOCK
100′ Crew/Supply Boat
22′ Beam
9′ 6″ Depth
5′ Draft

Powered by three (3) 12V92TI Detroit Diesel Engines MG 518 Gear 2½:1 reduction — 1935 HP — Cruising Speed approximately 28 MPH.

Fully equipped with radar, radio, lorraine, 7½ ton water cooled central A/C & heater, depth recorder, hydraulic steering with air controls, enclosed rear steering & controls, 3″ shaft, 30 long tons deck cargo.

Coast Guard Certified for 60 passengers & 200 miles offshore.

Sleeping accommodations for 5 crewmembers & a fully equipped galley.

Also: 40′ and 46′ Crew Boats

Contact: J.O. Neuville, Sr. (318) 229-6507
Errol Neuville 229-6803
Kerry Neuville 229-8242

Millard
CONTROLLED METALS
For NAVAL and NUCLEAR APPLICATIONS

NAVAL BRASS
BRONZE
COPPER
COPPER NICKEL
With Traceability to Origin

70-30 and 90-10
COPPER NICKEL ALLOY TUBE & PIPE
COPPER NICKEL FITTINGS
BUSHIPS DWG. 810-1385880

COPPER SEAMLESS TUBE

ADMIRALTY and COPPER NICKEL CONDENSER TUBE

ROD and BAR
NAVAL BRASS NAVY G METAL COPPER NICKEL
ALUMINUM BRONZE NICKEL ALUMINUM BRONZE
AMPCO 8 AMPCO 18 AMPCO 45 AMPCO 570
AMPCO 15 AMPCO 21 AMPCO 483

SHEET and PLATE
NAVAL BRASS COPPER NICKEL
ALUMINUM BRONZE

Complete Shearing, Sawing, Ring and Contour Cutting Facilities

Phone us at 215/674-9686 or write for our CONTROLLED METALS BROCHURE and our FULL-LINE CATALOG.

MILLARD CONTROLLED METALS, INC.
A MILLARD ASSOCIATED METAL SERVICE CENTER
GINKGO INDUSTRIAL PARK
5M LOUISE DRIVE • IVYLAND, PA 18974
CABLE "MILLARDMET" BOSTON

MILL TEST REPORTS • QUALITY CONTROL MIL-I-45208A

Commander **Clark Graham,** USN, Flagship Section chairman (left) introduced Rear Adm. **John D. Beecher,** USN, who delivered a paper on the "Reactivation of Battleships" to a recent meeting of the ASNE section.

ASNE Flagship Section Hears Admiral Beecher On Battleship Reactivation

The members of the Flagship Section of the American Society of Naval Engineers gathered at the Naval Surface Weapons Center, Dahlgren, Va., for the first meeting of the 1981-82 season to hear a paper on "Reactivation of the Battleships," given by Rear Adm. **John D. Beecher,** USN, NAVSEA's Deputy Commander for Surface Combatant Ships.

The afternoon session also included a historical look at the establishment of NSWC's facilities at Dahlgren from their beginning in 1918, presented by Capt. **L.E. Ackart,** USN, NSWC Deputy Commander, and a station bus tour of the laboratories, ranges, experimental sites, and housing and administrative areas. The highlight of this tour was the demonstration firing of the main range's 16-inch gun.

Admiral **Beecher's** paper started with a look at the various classes of battleships—including the one on which he spent a midshipman cruise — and moved to the steps being taken by the U.S. Navy to bring vessels from its mothballed battleship fleet out of retirement. The first battleship to be reactivated, the USS New Jersey (BB-62), was towed in July from its retirement berth at the inactive Ship Maintenance Facility at Bremerton, Wash., to the Long Beach Naval Shipyard. There it will begin a modernization and reactivation process at an estimated cost of $326 million, about the price of a Perry class (FFG-7) frigate.

Admiral **Beecher** said present world conditions—a dirth of U.S. carrier assets and a major increase in surface Navy assets of our potential enemies — justify the return of modernized battleships. The return of the New Jersey and planned updates for other Iowa-class battleships is viewed as the most cost effective way to provide an early significant increase in the capability of the U.S. Navy.

The New Jersey is expected to return to the fleet in early 1983, much sooner than it would take to build a new warship from the keel up.

During the meeting, ASNE members toured the facilities of the Naval Surface Weapons Center at Dahlgren, Va., and witnessed a test firing of a 16-inch gun, shown being loaded.

Philadelphia Resins Announces Expansion At Montgomeryville Plant

As the first stage of a major expansion, Philadelphia Resins Corporation, Montgomeryville, Pa., is adding 1,100 square meters (12,000 square feet) to one of its two modern manufacturing and production plants.

"This immediate expansion," **David H. Kollock,** president of the company stated, "will allow us to transfer some warehousing operations and all finished-product inventories from the Resin Division plant. We need more space in that production facility," he added, "to satisfy present and growing requirements for our broad range of marine and industrial resin systems."

By expanding the Phillystran Division plant, the company will be able to install a new rope-closing machine to produce large-diameter nonmetallic ropes for heavy-duty marine applications. It also is capable of handling very long lengths of flexible, nonmetallic rope, regardless of diameter. The inherent versatility will make the large rope-closing machine a natural complement to Philadelphia Resins' existing equipment for high-speed manufacturing of electrically transparent tower guys, radar and antenna mast stays, and various small diameter working ropes and cables.

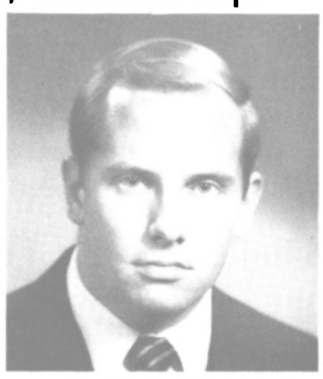
The second phase of the expansion program is also underway with the recent purchase of five acres of land, located immediately behind the company's central office facilities. Early in 1982, a new plant with approximately 3,650 square meters (40,000 square feet) of working space will further expand the company's production operations.

MarAd Increases Title XI Guarantee For CATUG

The Maritime Administration has recently increased its Title XI loan guarantee commitment on an integrated CATUG tug/barge tanker unit owned by the First Pennsylvania Bank from $52,292,000 to $60,753,000.

The increase resulted from a $9,669,000 increase in the actual cost of the vessel between the time of MarAd's initial commitment and the closing date of the guarantee agreement. Federal loan financing guarantees on this vessel cover up to 87½ percent of its $69,432,000 cost. The CATUG is chartered and operated by Artemis Marine Co., L.P.

Curacao Drydock Names Donald Volger U.S., Canadian Rep.



Donald W. Vogler

Richard R. Klattenberg, vice president, CD (USA) announced recently that **Donald W. Volger** has joined the firm to represent Curacao Drydock Company throughout the U.S. and Canada. Mr. **Vogler** was previously a ship sale and purchase broker with A.L. Burbank & Co., Ltd.

Curacao Drydock Co. has fully comprehensive facilities to perform conversions, repairs, and drydocking of vessels up to about 150,000 dwt.

Robertson Offers Remote Stations For Autopilot— Literature Available

The Robertson AP-30U Autopilot is now available with a second station for flybridge or other remote control station. Unlike other remote units, the AP-30U remote can operate fully independently of the main autopilot in case of trouble, and acts as a valuable backup, particularly important for workboats and fishing vessels that depend on their autopilots. This rugged unit is built in Norway to withstand the rigors of North Sea service, and is designed for all workboats and fishing vessels up to 80 feet long. It is available from Kongsberg North America, Inc., Leonia, N.J.

For further information and free literature on the AP-30U remote,

Write 51 on Reader Service Card

PRI Names Lubin Marine Transportation Manager

Jay F. Lubin has been named director of marine transportation for Pacific Resources, Limited, a subsidiary of Pacific Resources, Inc., Honolulu, Hawaii.

Mr. **Lubin** previously served with the U.S. Department of Energy, Washington, D.C., with the strategic petroleum reserve program as manager of crude oil allocations.

Norcontrol Offers New Anti-Collision System —Literature Available

Norcontrol has introduced DataBridge 7, a new advanced collision avoidance system which emphasizes operator/system communication while complying with recent demands from IMCO and the U.S. Coast Guard.

Norcontrol reports the new system includes several features specifically designed to aid the operator. Audio and visual warnings occur whenever a target exceeds "closest point of approach" and "time to closest point of approach" — limits selected by the operator. An enhanced luminosity of the system's daylight radar display provides greater visibility and makes the hood unnecessary. The daylight radar displays course-up, north-up or head-up modes on a 16-inch PPI screen.

DataBridge 7 includes features of its predecessor DB-4, such as constant monitoring of targets during own ship maneuvers. Its navigational sub-system tracks fixed targets, displays fairway lines, and performs dead-reckoning and drift calculations. The new system is microprocessor-controlled, contains no moving parts, and uses the latest self-checking technology. Continuous system monitoring of main signals and built-in debugging programs provide high reliability.

For complete free literature on the new DataBridge 7,

Write 15 on Reader Service Card

Ted Hansford Named Si-Tex General Manager

Ted Hansford

Ted Hansford has been named general manager of Si-Tex Marine Electronics, Clearwater, Fla. He succeeds **Preseley Taylor** who has retired. Mr. **Hansford** was previously marketing manager for Si-Tex's line of marine radars, depth recorders, Loran C receivers, VHF radios and ADF equipment.

Prior to joining Si-Tex he was sales manager of Seatron Marine Electronics, Philadalphia, Pa.

Si-Tex is a division of Smiths Industries, Inc.

Simrad Offers New Bottom Expansion Unit For Skipper Fish Finder

Simrad now offers a bottom expansion unit that is specially designed for bottom fishing. The unit easily fits into the cabinet of the Skipper 802 fish finder/recorder, and can therefore be retrofitted to existing 802s. The 802 bottom expansion unit enables the skipper to see fish details close to, or just above the bottom that would normally be difficult to pick out even with the sharp detail provided by the Skipper 802 sounder used on its own.

The expanded area can be chosen from either a 1¼, 2½, or 5 fathoms from the bottom and up. This area can then be presented in three different modes according to where the recording of the bottom contour will appear on the echo-gram, high up or low down.

The Skipper 802 sounder is already fitted with cable and a plug to take the bottom expansion unit. Samples of true echo-grams showing the expansion can be sent upon request.

For further information,

Write 29 on Reader Service Card

UPSCO Names Boczar VP Of Operations

The appointment of **Robert H. Boczar** as vice president of operations has been announced by the Upper Peninsula Shipbuilding Co. (UPSCO). The shipyard, located in Ontonagon, Mich., is a manufacturer of tugs, barges, drydocks and industrial steel fabrication work.

Robert H. Boczar

Formerly, he was manager of manufacturing/methods engineering and then manager of manufacturing services at Beloit Corporation in their Paper Machinery Division. Mr. **Boczar** is currently responsible for the overall supervision and coordination of UPSCO's operations. His extensive shipyard experiences began as a boilermaker apprentice and loftsman at Bethlehem Steel's Fore River Shipyard and culminated with his appointments as general superintendent-steel trades and plant manager of General Dynamics Corporation/Electric Boat Division.

Tenfjord Steering Gear Installed On New Corps Of Engineers Dredge

Marine Technical Associates, Little Falls, N.J., recently announced that Tenfjord rotary hydraulic steering gear has been installed on the medium class U.S. Army Corps of Engineers dredge under construction at Bath (Maine) Iron Works.

MTA sells and services Tenfjord equipment. For further information on Tenfjord's line of steering gear,

Write 60 on Reader Service Card

COMSAT To Hold Marine Satellite Service Seminar In New York, December 1

COMSAT will conduct a one-day seminar for maritime industry personnel on December 1 in New York City to provide current information on new developments in maritime satellite communications.

Companies or organizations who wish to send representatives should notify in writing **Hale Montgomery,** COMSAT Maritime Services, 950 L'Enfant Plaza, S.W., Washington, D.C. 20024. There is no charge for attendance; reservations should be received by November 18.

The seminar will be held at the Whitehall Club, 17 Battery Place, on Tuesday, December 1, from 9 a.m. to 4 p.m. This is the first such COMSAT seminar to be held in New York City for East Coast shipping; similar seminars were held in Los Angeles and New Orleans earlier this year.

The seminar will provide company executives and operational and telecommunications managers in the shipping industry with information on the use of satellite communications, and on planning for transition of services from the present MARISAT system to the new international INMARSAT system, which is scheduled to start operations February 1, 1982.

The seminar agenda will include a description of the INMARSAT organization and system, expanded coverage areas, services and customer applications, interconnection arrangements, and future trends in maritime satellite communications.

Litton's Amecom Division Awarded $3-Million Navy Contract Modification

Litton Systems, Inc., Amecom Division, College Park, Md., has been awarded a $3,347,000 modification to an existing firm fixed price contract for a high frequency communication suite for one CG-48 class ship. The Naval Electronic Systems Command is the contracting activity. (N00039-80-C-0594)

Ohio River Terminal Renovation Increases Throughput By 75 Percent

In June, 1981, Ohio River Company's Huntington, W.Va. coal transfer terminal began operating at a throughput of five million tons per year—up from an average of 3.5 million tons per year. The 75-percent-capacity increase was gained through a 19-month renovation project that was carried out with only 1½ weeks downtime.

A conceptual feasibility study, completed in September 1978, served as the basis for the construction work, awarded to the Dravo Corporation, that began in November 1979. The conceptual study was undertaken by Soros Associates of New York City, who worked closely with the Ohio River Company to develop a scheme that was keyed to minimizing downtime, while addressing critical problem areas at the 52-year-old terminal. In addition to the design scheme, the study report also suggested new operating procedures, manpower requirements and operator duties necessary for realization of the significant throughput rate increase allowed by the new design. An option for an improved design, which would allow for a further increase, was also included. The original six-week downtime requirement projected in the study was reduced to 1⅛ weeks through the final construction plan proposed by the Ohio River Company.

Previous Limitations

The Huntington Terminal yard averaged 75-85 coal cars dumped per eight-hour shift, with the maximum rate of 100 cars per shift, not sustainable due to yard congestion. The yard congestion was amplified by an average of 100 cars with special consignments awaiting assembly to a barge load.

The average total capacity for an eight-hour shift was further limited by the need to use a significant amount of time for car shifting. This procedure was mandated by the use of inside tracks for collecting empty cars, while outside tracks were used for loaded cars. To pull out empty cars, locomotives had to run through switches. This stopped the dumping operation.

Cars were taken to a bottom-dump type pit for simultaneous, parallel dumping of two cars. Problem-ridden car shakers, as well as damage to railroad cars and noise complaints from the community, were endured in an effort to speed coal discharge. In addition, the usual dump hoppers designed for 60-ton cars resulted in some spillage from present-day 100-ton cars.

One of the three coal conveyors was supported by a floating dock, which served as the barge loader. This arrangement required constant movement of barges to adjust to the river level, reducing operational efficiency, and also creating a significant maintenance burden.

Renovation Design

The design scheme for renovation was developed to allow for an increase in dumping capacity, from 75-85 coal cars per shift, to Ohio River Company's objective of 150-160 cars per shift, while minimizing downtime.

The Ohio River Company asked Soros Associates to first review a previous renovation proposal based on the installation of a new, 80-foot-long bottom-dump pit. The scheme allowed for dumping cars while they moved along a single track, with a system of hoist-mounted shakers utilized to increase the dumping rate.

Soros rejected this concept and proposed a rotary-type car dumper as a preferred alternative. Soros also doubted the workability of a moving shaker system, and cited its high noise levels, longer periods required for coal thawing, expected damage to railroad cars, and probable significant contribution to downtime in the dumper area. As a result of these considerations, the rotary-type was accepted.

The project team considered several alternative new rail layout and operational schemes in an effort to gain maximum ad-

vantage from the new dumper system.

The accepted scheme featured dividing the car storage yard into two sections, and establishing two pull-out tracks and a distribution switch. These features, along with new operational procedures, provided for a continuous dumping operation in a given shift, eliminating the previous necessity for a three-hour stoppage for car shifting. The accepted scheme also called for leasing adjacent property, easing yard congestion, and allowing for the delivery of strings of 25 loaded cars to the dumper at a time, up from 20 previously.

The accepted scheme also called for installation of a barge loading conveyor mounted on two 16-foot-diameter cells, and suspended via a hoist system to allow for adjustment to variations in the level of the river. This modification eliminated operational and maintenance problems experienced with the previous floating-dock barge loader.

Roy Moffett Named To MarAd Operations Post

Roy R. Moffett

F.X. McNerney, director of the Maritime Administration's Central Region, has announced the appointment of **Roy R. Moffett** as central region ship operations officer, stationed in New Orleans, La.

Until recently, Mr. **Moffett** had served as an operations research analyst in the region finance office. Prior to that time, he was central region intermodal development officer and earlier had served as chief, division of production, in the office of ship construction at MarAd's headquarters, Washington, D.C. In the latter capacity, he managed several of the agency's shipyard activities including monitoring the progress of ship construction under the shipbuilding subsidy program. He also supervised all field construction representatives located at the major shipyards in the United States.

Swedish Yard To Build $70-Million Tanker

A 123,500-dwt shuttle tanker is to be delivered to Elnar Rasmussen, Norway, by Sweden's Uddevallavarvet shipyard under the terms of a NKr 400-million ($70,000,000) contract. The vessel, intended for the buoy-loading of oil from the Norwegian Statfjord field in the North Sea, is scheduled for delivery in the first half of 1983.

The new vessel will have overall length of 264 meters (about 866 feet), a beam of 48 meters (157 feet), and a draft of 14.5 meters (48 feet). Cargo capacity amounts to 147,500 cubic meters. Of completely new type, the shuttle tanker has very low fuel consumption attained by means of optimum hull form in combination with a twin skeg arrangement and low speed propellers.

High maneuverability is made possible by double rudders, c-p main propellers, one bow thruster, and two thrusters abaft. Two independent main engines, each of 8,970 hp, two rudders, and two propellers will give the vessel high operational dependability.

Award $26-Million Navy Contract To Hughes For Oceanographic Equipment

Hughes Aircraft Company, Fullerton, Calif., has been awarded a $26,615,048 modification to an existing cost plus fixed fee contract for oceanographic equipment. The Naval Electronic Systems Command is the contracting activity. (N00039-81-C-0146)

Barge-Mounted Polyethylene Plant Delivered To Site In Argentina

Union Carbide Corporation, New York, N.Y., announced the recent completion and on-time delivery of the world's first waterborne polyethylene plant. The 120,000 metric tons-per-year UNIPOL process plant is undergoing pre-operational testing at Bahia Blanca, Argentina, following a 15,000-mile ocean voyage from the shipbuilding facilities of Ishikawajima-Harima Heavy Industries Company (IHI), Nagoya, Japan.

The world's first transportable polyethylene plant en route from Japan to Bahia Blanca, Argentina.

The plant has been purchased by IPAKO S.A., a subsidiary of the Garovaglio & Zorraquin conglomerate of Argentina, and assigned to Polisur. Polisur S.M. is an Argentine corporation jointly owned by IPAKO and the Direccion General de Fabricaciones Militares. The plant will be an integral part of the new Polisur polyethylene complex now nearing completion at Bahia Blanca.

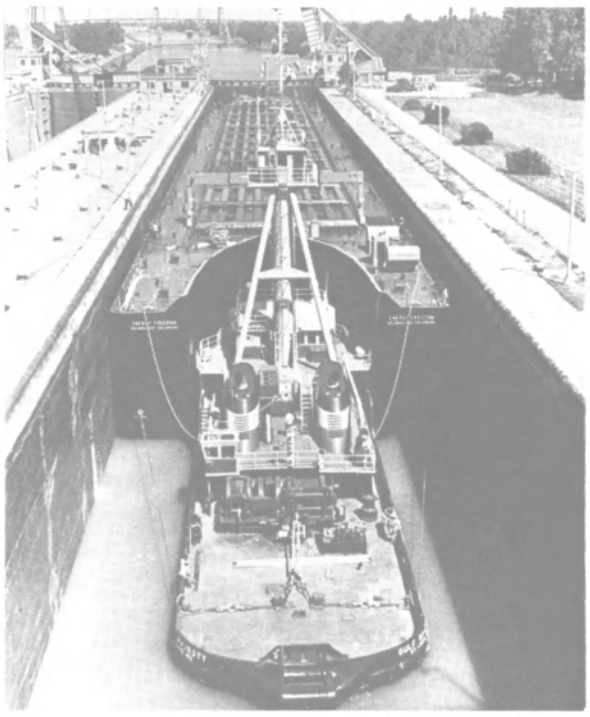
The W, for waterborne, polyethylene plant is a versatile time and cost saving option to conventional on-site plant construction and is available only from Union Carbide. It is made possible by the simplicity and mild operating conditions of the company's UNIPOL process which occupies only one tenth the space of conventional high pressure polyethylene plants and requires only one quarter the energy. The Argentine W plant is 89 meters in length by 22.5 meters in width (about 292 by 74 feet), yet is a complete full-scale production unit.

The W plant option can mean savings of as much as two to three years from the time required to build a comparably sized conventional polyethylene plant in out-of-the-way locations.

W plants can be towed to their destination by oceangoing tugs or, as in this case, transported atop a carrier ship such as the

Super Servant 1, a semisubmersible vessel belonging to Wijsmuller B.V. of Holland. The 15,333 mile voyage across the Pacific through the Panama Canal to Bahia Blanca took 49 days.

Energy Freedom Widest Ever To Travel Through Welland Canal



Photographer: Mike Conley, St. Catharines Standard

It was a close fit for the 550-foot coal carrier Energy Freedom as the tug Gulf Majesty (shown above) squeezed the barge into Lock 4 of the Welland Canal. (See MARITIME REPORTER October 1 issue cover story.) The barge has a beam of 78 feet and the lock is only 80 feet wide. The Energy Freedom is the widest ever to travel through the waterway and was downbound with a cargo of coal for delivery at Wilmington, Del.

With the 149-foot Gulf Majesty in its 60-foot-deep stern notch, the tug/barge combination measures 642 feet. The 7,200-brake-horsepower tug is fitted with a secondary 49-foot pilothouse, and bow and side bumpers were installed to convert the tug from a towing to a combination notch/towing tug.

The Energy Freedom, built by Bay Shipbuilding Corp., Sturgeon Bay, Wis., is owned by Universal American Shipping Corporation of Greenwich, Conn. Bay Shipbuilding Corp., a subsidiary of The Manitowoc Company, Inc., also handled the converting of Gulf Marine Corp.'s fleet tug Gulf Majesty to combination notch/towing tug.

Electric Boat's Submarine Facilities Subject Of ASNE Section Presentation

Kenneth Brown, manager of operations engineering at General Dynamics Corporation's Electric Boat Division in Groton, Conn., was the guest speaker at a recent meeting of the American Society of Naval Engineers, Northern New England Section. The dinner meeting was held at Pier II in Portsmouth, N.H.

Mr. **Brown** described the facilities that were designed and developed by Electric Boat to build the Trident class submarines. These facilities included a $150-million, 10-acre land level submarine construction complex which provides for the simultaneous construction of two or more classes of submarines, and the automated submarine frame and cylinder manufacturing facility at Quonset Point, R.I. The Quonset Point facility, the only one of its kind in the world, provides a major improvement in the method of fabricating submarine hull sections. Pictures, slides and models of the unique equipment were used to illustrate the details of Mr. **Brown's** presentation.

ASNE Northern New England Section chairman **Philip V. Johnson (left)** welcomes speaker **Kenneth Brown** of General Dynamics to meeting held in Portsmouth, N.H.

Krupp Atlas Opens New Houston Office

Krupp Atlas has recently relocated to a new expanded facility in Houston. Located at 6023 South Loop East, this new office will be headed by Krupp's Gulf Coast regional manager **Doug Blue**. Krupp will continue to cater to its survey and marine electronics customers by providing expanded warehousing, service, and sales support.

ABS Reports Record Number Of Vessels Under Classification

The number of vessels in American Bureau of Shipping (ABS) classification has climbed to a record total, **William N. Johnston**, the chairman and president, reported at the semiannual meeting of the international ship classification society.

ABS classed 388 new vessels of 3,200,000 dwt or 1,857,000 gt in the first six months of 1981, and 45 existing vessels of 784,000 dwt or 438,000 gt. "With these additions, the number of vessels in ABS classification climbed to a record total," Mr. **Johnston** said. As of mid-year there were 15,956 vessels of 196,021,000 dwt or 110,088,000 gt in ABS classification, representing 91 flags of registry.

The chairman said that ABS classification contracts for newbuildings were received at a brisk rate in the first six months. During that period contracts to class 679 new vessels of 4,582,000 dwt or 2,658,000 gt were received, with particularly strong contributions coming from the dry bulk carrier, mobile offshore drilling unit, supply vessel, and fishing vessel sectors.

The newbuilding classification contracts, from 44 countries, enabled the ABS order book to reach a mid-year total of 2,234 vessels of 19,297,000 dwt or 12,471,000 gt. Mr. **Johnston** said, "We have not had this many vessels on our order book since January of 1977, and it supports our sense of confidence in the future outlook for ABS and the maritime industry."

Mr. **Johnston** noted that according to many estimates the world's bulk carrier fleet is expected to increase by 20 percent in the next three years. He said that ABS experience supports this projection as contracts to class 56 bulk carriers were received in the first six months of 1981 — more than the total number received in all of 1980 for this type of vessel.

"Orders for mobile offshore drilling units have surged to a remarkable level," the chairman reported. ABS received contracts to class 78 units in the first six months of 1981, increasing the total drilling units contracted for or being built to ABS class to 222, and at that time there were an additional 321 units in ABS classification.

Mr. **Johnston** added that ABS activity with the classification of offshore installations has moved ahead strongly. ABS classed five installations in the first half of this year. There are a total of eight installations now classed by ABS. In addition, there were 12 installations contracted for or being built to ABS classification.

ABS classed 47 support boats for the offshore industry in the first six months and received contracts to class 106 more, twice the number of contracts received in all of 1980 for these vessels. ABS also received contracts to class 63 fishing vessels in the first half, triple the number in all of 1980.

In the first six months 57,600 containers were certified to ABS "Container Rules," an increase of 40 percent over the first half of 1980. Earlier this year, ABS certified its 500,000th container.

The ABS quality assurance program has been expanded with the addition of quality control procedures for the manufacture of diesel engines, gas turbines, reduction gears, container refrigeration machinery, and rotating electrical equipment. The chairman said that 58 manufacturing plants are now producing materials and components under the ABS quality assurance programs.

The computerized survey status system for ABS-classed vessels continues to be expanded. Seven offices on three continents were added in the first half of this year, making a total of 38 ABS offices and seven clients who have direct access to the system.

ABS continues to devote effort to research and development. Mr. **Johnston** cited some of the projects in which ABS was involved, including the evaluation of ice loading on ships, collision damage resistance of offshore structures, propeller blade strength, effects of extreme wave-induced loads on ship designs, and fatigue evaluation of ships and other marine structures.

Mr. **Johnston** reported that in June ABS had signed a "Memorandum of Understanding" with the U.S. Coast Guard providing for Coast Guard acceptance of ABS plan review on the inspection of selected items on new vessel construction classed by ABS and certified by the Coast Guard. The items covered include: hull structure of ships, mobile offshore drilling units and barges, as well as inert gas systems, crude oil washing systems, and certain piping systems. Mr. **Johnston** said that discussions to to expand the areas of cooperation covered by the memordandum are continuing.

As of mid-year, 83 governments had authorized ABS to issue loadline certificates under the 1966 International Convention. Of the 51 governments that previously had authorized ABS to act on their behalf for SOLAS-60, as of mid-year 34 of those governments have extended their authorizations for SOLAS-74. ABS also is authorized

by 46 governments to issue national tonnage certificates on their behalf.

Regarding MARPOL 1974 and the associated International Conference on Tanker Safety on Pollution Prevention, known as the Protocol of 1978, ABS has been involved with the review of tankers for compliance to the regulations. To date, ABS has reviewed inert gas systems of more than 450 vessels, and reviewed the crude oil washing and clean ballast tank or segregated ballast tank systems of more than 400 vessels.

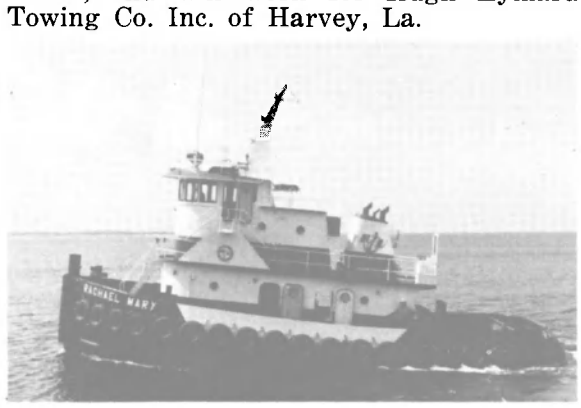
Texaco Grant Presented To Fort Schuyler Foundation

The Maritime College at Fort Schuyler Foundation, Inc. was recently presented with a $2,000 unrestricted contribution from the Texaco Philanthropic Foundation.

The gift was presented by alumnus **Charles J. Gay** (left), assistant general manager of the Texaco Marine Sales Department, to Cadet **Howard Hawrey,** 1/c, Regimental Commander, representing the cadet corps. The Fort Schuyler Foundation Inc. was established in 1976 to assist the college in its academic and scholarship programs. This was Texaco's second unrestricted gift to the college this year under a special $4,000 grant program.

Patti Industries Delivers Two Tugs, Receives Contracts For Two More

Patti Industries Inc. of Pensacola, Fla., recently delivered the M/V Rachael Mary and M/V Sylvia Curole. The Rachael Mary, a 1,200-hp tunnel designed 65-foot by 24-foot by 9-foot 6-inch Model bow tug was delivered to **Hugh Eymard** and **Donald Vizier,** and will work for Hugh Eymard Towing Co. Inc. of Harvey, La.



Powered by two GM 16V71 engines, the 65-foot Rachael Mary will work for Hugh Eymard Towing Co. of Harvey, La.

In addition to tunnels, the Rachael Mary was constructed with longitudinal framing, adding strength and fairing to the hull and superstructure. The Rachael is equipped with a pair of GM 16V71 main engines with 5:1 reduction, and two 30-kw generators supplied by George Engine Co. The hydraulic steering was furnished by Custom Hydraulics, air controls were Kobelt, and a Smatco towing winch with S.S. stern rollers was installed for anchor handling.

The Sylvia Curole was delivered to **T.U. Gruidry** and **Reynolds Curole**. The 65-foot 1,000-hp tug was constructed with Patti's longitudinal and transverse frames, and is a sister ship to the M/V Katie Cheramie and M/V Julie Plaisance. The Sylvia will be working for Huey L. Cheramie Inc. of Galliano, La. The 12V71 GM engines and 30-kw generators were supplied by Kennedy Engine Co. of Mobile, Ala.

The delivery of the M/V Rachael Mary and the M/V Sylvia Curole makes five consecutive on-time deliveries in 1981 for Patti Industries. Patti's next delivery will be the M/V Harvey Viking, a 90-foot, 3,000-hp oceangoing tug. The Viking will be delivered to Harvey Gulf in early 1982.

Patti Industries Inc. also announced the signing of two new contracts. One contract is with Brazosport Towing Inc. of Freeport, Texas, for the construction of one 100-foot

Patti Industries recently delivered the 65-foot Sylvia Curole to **T.U. Gruidry** and **Reynolds Curole**. The 1,000-hp tug is powered by GM 12V71 engines.

by 30-foot by 14-foot ABS-classed 3,000-hp oceangoing tug, and a contract with Monad Systems Inc. of Hampton, Va., for a 65-foot 1,200-hp Model bow tug.

CLASSIFIED ADVERTISING

HOW TO PLACE CLASSIFIED ADVERTISING: ...Mail clearly written or typed copy to: MARITIME REPORTER, 107 East 31st Street, New York, N.Y. 10016. Include any photos, drawings or logos if required. Specify size of ad and number of insertions. ...Classified Advertising— Per Issue Rate: Classified advertising is sold at a rate of $45 per column inch. ...MARITIME REPORTER'S classified section carries more advertising and sells more products than any other publication in the marine industry. MARITIME REPORTER is published on the 1st and the 15th of each month. Closing date for classified advertising is 20 days prior to the date of the issue. For further details contact Cathy Allgauer at (212) 689-3266. Send all advertising material to MARITIME REPORTER and Engineering News, 107 East 31st St., New York, N.Y. 10016

L-V Marine Consultants Can Find The Key Personnel You Need!

Through our coast-to-coast contacts within the marine industry, we will find the specialists you are searching for. We work with senior and middle management, sales, estimators, engineers, dockmasters, planners, ship's superintendents etc.

Our fees are competitive and we are only paid when we are successful. For more information, call Larry Victor at (713) 461-8672

L-V MARINE CONSULTANTS
12633 MEMORIAL DRIVE, SUITE #40 HOUSTON, TEXAS 77024
(713) 461-8672

ExecuSearch
Professional Recruiters
Specializing in
MARINE • SHIPPING • TRANSPORTATION
We are specialists who know YOUR business
ExecuSearch
Division of Gerri G. Inc.
For information contact:
Michael R. Keough
Vice-President,
General Manager
140 Bay St. / Staten Island NY 10301 • 212-447-5558

Globe PERSONNEL CONSULTANTS
RECRUITERS OF PROFESSIONAL PERSONNEL FOR INDUSTRY
EMPLOYMENT SPECIALISTS IN THE MARINE INDUSTRY
Job opportunities in marine professions. Naval architects, marine engineers, shore-based marine administration, mechanical, structural, and other disciplines in offshore, marine and shipbuilding industries.
2727 KIRBY, #517 HOUSTON, TEX. 77098
713 / 526-3748

Ingalls Shipbuilding Division of Litton Industries, located on the beautiful Gulf of Mexico in Pascagoula, Mississippi, was recently awarded $667 million in contracts for the construction of two additional Aegis Guided Missile Cruisers . . . a new class of Navy ships to be built over the next 4 years . . . this being the third and fourth ships of this series for Ingalls to build has created new employment opportunities for Ingalls. Ingalls is accepting applications for the following key management position:

SECTION MANAGER DESIGN
ENGINEERING - HULL TECHNICAL

Candidate selected must possess ten (10) years Naval Architecture experience on U. S. Navy and/or commercial ships. Supervisory experience desired. Will supervise approximately 30 Naval Architects and Engineers performing naval architectural and stress analysis duties on various U. S. Navy and commercial contracts. Must be extremely knowledgeable in structural analysis and all areas of naval architecture. BS degree Naval Architecture required.

Qualified applicants should submit their resume and salary history, in confidence, to:

W. L. RUSHING
Professional Employment
Ingalls Shipbuilding
Litton P.O. Box 149 Pascagoula, MS 39567
An equal opportunity employer M/F

U.S. citizenship required

SUPERINTENDENT (PAINTING)

Progressive Northeast Wisconsin shipyard is in need of an experienced Superintendent (Painting) with extensive knowledge of various paints, primers, varnishes and various painting and sandblasting techniques. The ideal candidate will also have proven managerial skills including communications with senior management officials, manpower planning and scheduling. We offer attractive salary and benefits package including profit sharing. Qualified applicants should send complete resume' and salary history to:

Personnel Manager
Peterson Builders, Inc.
101 Pennsylvania Street
Sturgeon Bay, Wisconsin 54235

We are an Equal Opportunity Employer
M/F/V/H

PROGRAM MANAGER

Lake Shore is a major supplier of custom designed cranes, winches, and material handling systems for marine shipboard and nuclear power plant applications. As a result of rapidly expanding business opportunities, we have need for a Program Manager.

This individual will have responsibilities for managing major projects through design, manufacturing, testing and installation. Qualified individual to be degreed and have extensive engineering/manufacturing background with demonstrated ability to manage major programs. This position requires interface with top level management within the company and customer organizations. This is a highly visible position with growth opportunities.

Send resume in confidence to:

LAKE SHORE, INC.
Attn: Personnel Department
P.O. Box 809
Iron Mountain, MI 49801

An Equal Opportunity Employer

Career Associates, inc.

Maritime Personnel Consultants

Nationwide professional placement, recruiting & search services. Our computer based data retrieval system assures rapid, effective matching of job requirements and available talent.

ACT NOW!

MANY OPPORTUNITIES AVAILABLE, INCLUDING:

- SHIPYARD PRODUCTION MANAGERS ..... OPEN
- PROJECT MGR (PORT CONSTRUCTION) ..... OPEN
- SUPT ENGR (CHF ENGR; STEAM & DIESEL) to $55K
- PORT CAPTAINS/PORT ENGINEERS ..... to $45K
- DOCKING MASTER (SHIPYARD) ..... to $40K
- APPLICATIONS ENGR (LARGE DIESELS) ..... to $40K
- SALES ENGR (C.P. PROPS; THRUSTERS; ETC) ..... to $35K+
- MECH/CIVIL ENGRS (STRUCTURAL) ..... to $35K
- SALES (CHEM; COAT; ELECTR; ETC) ..... to $35K+
- SYSTEMS ENGRS (OCEANO/HYDRO) ..... to $35K+
- NAV ARCH/MAR ENGRS ..... to $30K
- DRAFTING (MECH; PIPING; ELECTR) ..... to $27K

Call/mail resumes and salary info/job requirements to:

BOB SLEIERTIN
P.O. BOX 86-A (583 State Road)
No. Dartmouth, Mass. 02747
(617) 997-3311

CORPORATE COMMUNICATOR

Experienced corporate communicator seeks position as maritime public relations director. Strong writing and editing background in the maritime, metals and power generation industries: executive speeches, news releases, position papers, lobbying, technical articles, corporate publications and ad campaigns.

Box 1015

MARITIME REPORTER/Engineering News
107 East 31 Street New York, NY 10016

MANAGER, TECHNICAL SERVICES –Marine Fabrication–

Assert Your Engineering Leadership in a Manufacturing Environment

Extensive managerial responsibility can be yours with a major division of a billion-dollar manufacturing corporation. Reporting directly to the General Manager, you'll guide and organize the activities of a marine engineering staff to ensure the completion of projects on time and to cost.

You'll participate in the formulation of effective designs for heavy marine structural fabrications, including barges, tugboats, and other marine products. Special projects and design problems must be met with innovative procedural solutions.

If you possess extensive experience in naval design/architecture and metal fabrication/manufacturing, and would like to find out about our excellent salary and benefits, forward resume and salary history to:

Box 1102

Maritime Reporter/Engineering News
107 East 31 Street NY, NY 10016

An Equal Opportunity Employer

JUNIOR MARINE ENGINEER

Bulk Carrier Owner/Operator has excellent career opening in their Marine and Engineering Department for a B.S. Marine Graduate with limited experience. Seagoing License and Diesel experience preferable.

Box 1103 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

MARINE RECRUITING DIVISION
Professional Staffing, Inc.

Professional and Confidential Recruitment and Placement of Marine Personnel

Contact
Lenny Morgan, Marine Recruiter
1250 POYDRAS STREET
SUITE 820
NEW ORLEANS, LA 70112
PH. (504) 524-6095

Managers
Naval Architects
Proj. Managers
Engineers
Superintendents
Estimators, Planners
and other
Shore-based
Professionals
in Marine
Shipbuilding
and Offshore
Industries

STEAMSHIP VENDORS℠

World-Wide Credit Reporting Service

Literature on Request

P.O. Box 2850
Long Beach, CA 90801 U.S.A. (213) 547-0527

MFGRS REP SEEKS MANUFACTURERS:

Mfgr rep seeks manufacturers operating in Marine-Offshore-Industrial-&-Military markets. Territory: N.J. to Maine. 18 years exp. w/Shipyrds-Designers/Distr. & OEMS.

Write: Maritime Reporter/Engineering News
107 E. 31 Street (P.O. Box 915)
New York, NY 10016

NAVAL ARCHITECT:

We have an immediate need for an engineering manager at our Gulf Coast Facility to direct all engineering activities related to the manufacture of large monobloc propellers and to be responsible for planning and production scheduling. This candidate must have excellent engineering credentials and have demonstrated previously outstanding technical managerial and administrative abilities. We prefer that the application have a BSE with 5 - 10 years experience.

Box 1101 Maritime Reporter/Engineering News
107 East 31 Street New York, NY 10016

WILSON is STEAMSHIP

We have served the Shipping Industry exclusively for over 40 years and maintain an active file of people experienced in all of its phases – including Port Engineers, Ship Construction Supervisors, M&R, Sales Engineers (chemicals, coatings, etc.) – to relocate anywhere. Salaries and fees negotiable; inquiries without obligation and in confidence.

WILSON employment agencies

Specializing exclusively to the Maritime Industry for over 40 years

1121 Walker, Suite 220
Houston, Texas 77002
(713) 224-2200

150 Broadway, Suite 503
New York, New York 10038
(212) 732-2921

LTL CONSULTANTS, INC.

MARINE EXECUTIVE PLACEMENT

- Marine Engineering
- Naval Architecture
- Marine Operations

SHORESIDE - NATIONWIDE

LOUIS T. BATAILLE
MARINE MANAGER

450 SEVENTH AVE.
NEW YORK, N.Y. 10123

212-239-4797

MARITIME EDUCATION: Licensed Deck Officers with relevant academic degrees needed to fill faculty vacancies beginning in January, 1982. Openings as Associate/Assistant Professor in Marine Transportation available for appropriately qualified officers. These are twelve-month Tenure-Track positions, including annual two-month training cruise as Deck watch officers and instructors in Seamanship, Navigation and Communication aboard the assigned Academy Training Vessel. Sun Belt living, excellent benefits, competitive compensation package, and challenging opportunity to work with outstanding young men and women cadets seeking careers as licensed deck officers. **Contact Captain James F. McNulty, Head, Department of Marine Transportation, Texas Maritime College, Texas A & M University at Galveston, Texas 77553. (713) 766-3271/3278.**

PORT ENGINEER

Responsible for the day to day supervision for the efficient operation of large and small Tug/Barge units in U.S. Coast wise trading.

Responsibilities include administering the maintenance and repair of hulls, machinery and equipment and writing repair specifications. Position requires 3-5 years marine operating experience in handling shipyard repairs and negotiations.

Chief Engineer License required. Slow and medium speed diesel experience and knowledge necessary. Miami based. Travel required.

Complete benefits package which includes pension, stock, vacation medical and dental.

Send resume and salary requirements to:

BELCHER OIL COMPANY
Personnel Department
Attn: Capt. W. G. Bunting
P. O. Box 525500
Miami, Florida 33152

EQUAL OPPORTUNITY EMPLOYER

SHIPBUILDING
VESSEL
TRANSPORTATION
MARINE OPERATIONS

Regional • National • International

Marine Personnel Consultants

Bianco International, Inc.

P.O. Box 544
100 Mariner's Blvd.
Mandeville, Louisiana 70448
504/ 626-4424
New Orleans Number 504/ 524-8607

C. B. DARCY

MARINE SALES

REPRESENTING

Johnson® Johnson Rubber Co.

Rubber Sleeve or Flange Bearings
Stuffing Boxes and Keel Coolers
Heavy Duty Fendering

WESTERN BRANCH METALS

Armco Stainless Shafting Systems
Machining — Propeller Nuts

ENVIROVAC INC.

Custom and Pre-engineered
Vacuum Sewage Collection Systems
Uses 3 pint flush toilet

DAMAN INDUSTRIES

Ceramaloy Coatings
Propeller Shaft Liners
Dredge Pump Sleeves and Shafts

KAHLENBERG BROS.

Air Horns — S/S Propellers

P.O. Box 33, Glenhead, N.Y. 11545
516-676-3738

"FLY ME TO SLABOVIA"

SHIPBUILDING—SHIP REPAIR OPPORTUNITIES!

Shipyard General Manager
Assistant General Manager
Chief Engineer
Assistant Chief Engineer
Assistant Production Manager
Chief Plant Engineer
Industrial Relations Manager
Naval Architect
Production Supervisors (Varied)

We specialize in recruiting key personnel for the shipbuilding/ship repair industry. All fees and expenses are company paid. The positions listed above, and many others, are now open. Call Mr. M. A. Weeks at (205) 661-2294 as soon as possible, or send resume immedately:

WEEKS AND ASSOCIATES
Management Consultants
921 Cottage Hill Avenue
Mobile, Alabama 36609

Personalized Consulting Service

Imaginative sales marketing PR professional with marine engineering license and experience can help you to achieve profitability goals.

Background includes naval architecture coatings, and specialty chemicals.

Box 717
MARITIME REPORTER/ENGINEERING NEWS
107 East 31st Street
New York, NY 10016

Expanding marine coating manufacturer seeks aggressive stocking agents for internal area coatings.

Write Box 1105
Maritime Reporter, 107 Eost 31st Street
New York, New York 10016

PURCHASING – BUYER – SHIPBUILDING

Progressive Northeast Wisconsin shipyard is in need of buyers/expeditors. Must be experienced in Government Contract purchasing and familiar with Military Specifications. We offer attractive salary and benefit package including profit sharing. Qualified applicants should send complete resume' and salary history to:

Personnel Manager
Peterson Builders, Inc.
101 Pennsylvania Street
Sturgeon Bay, Wisconsin 54235

We are an Equal Opportunity Employer
M/F/V/H.

GENERAL MANAGER

Small, progressive shipbuilding yard located in the heart of pleasant Delmarva peninsula is looking for a take charge general manager. Must have experience in construction of small steel commercial vessels. Send resume including salary requirement to:

Box 1104 — **Maritime Reporter/Engineering News**
107 East 31st St. — **New York, N.Y. 10016**

FOR SALE

SELF PROPELLED RAIL CAR FERRY

(Convertible to Ferry, Offshore Barge, Processing Plant, Etc.)

370' × 59' × 16' — EXCELLENT CONDITION

Gross Tons-2255	DWT Capacity-3000 L/T
Propulsion	3 Enterprise Diesels, DMG 38, 2100 HP
Diesel Fuel Capacity	42,000 Gallons
Built-Portland, Oregon to ABS	1957
Bottom & Sides ½" Steel	Keel & Sheer Strake ¾" Steel
Deck Capacity	28 100 Ton Rail Cars

Schnitzer-Levin Marine Company

San Francisco (415) 761-0993
TWX 910-371-7248
445 Littlefield Avenue (Box 2445)
South San Francisco, CA 94080

New York (212) 832-3320

ESTIMATOR

Bethlehem Steel's Beaumont, Texas Shipyard has an immediate opening for an Estimator. Applicants must have experience in new construction and ship repair. Excellent fringe benefits. Salary commensurate with ability. Send resume and salary requirements in confidence to:

Bethlehem Steel Corporation
P. O. Box 3031
Beaumont, TX 77704

An Equal Opportunity Employer M/F

FISHING VESSEL

Catcher - Processor

Vessel Particulars

Length 155′	Net Tons 133
Breadth 30′	Main Engine —
Depth 12.1′	Twin G.M.C.
Gross Tons 195	1200 H.P. ea.
	(6) Holds

Machinery & Equipment

245 cu. ft. walk-in freezer

(12) Hydraulic Cranes & Winches

Sperry 7″ Compass, Northern

N-550 SSB Radios, Konel Furuno Radar, Furuno Fathometer

Phone — (602) 248-5777/5520
Ask for Roy or Bob

HYDRAULICS

SERVICE • REPAIR • PARTS
CONSULTING • DESIGN

CUNNINGHAM MARINE HYDRAULICS CO., INC.

201 Harrison St. • Hoboken, N.J. 07030
(201) 792-0500 (212) 267-0328

2030 E. Adams St. • Jacksonville, FL 32202
(904) 354-0840

TWX 710-730-5224 CMH Hoboken, NJ

For Sale
Turbine Driven Pumps

Ingersoll Rand type 10ALV 3000GPM @352′ head driven by Westinghouse Steam Turbine Model C-225 575 HP 377°F 175 psig 2640 rpm excellent condition.

NICOLAI JOFFE CORPORATION
9171 Wilshire Boulevard Beverly Hills, Ca. 90210
(213) 878-0650 Telex 67-4638

BARGES FOR LEASE
ON GULF COAST OF FLORIDA

MISENER BARGE AND BOAT RENTAL, INC.
St. Petersburg Beach, Florida 813-360-7033

MARINE DIESEL SPECIALISTS

Can we help you select the most fuel efficient engine for your Marine Requirements? We can offer:
Allis-Chalmers from 32 to 450 BHP, new/ MWM from 428 BHP to 8,000 BHP, new
Mitsubishi UEC from 3,000 BHP to 9,000 BHP, new/ EMD engines from 1300 BHP to 3600 BHP, remanufactured

Schnitzer-Levin Marine Company
San Francisco (415) 761-0993
TWX 910-371-7248
445 Littlefield Avenue (Box 2445)
South San Francisco, CA 94080
New York (212) 832-3320 Portland (503) 224-9900

FOR SALE

Two twin screw towboats Built in 1960/1961

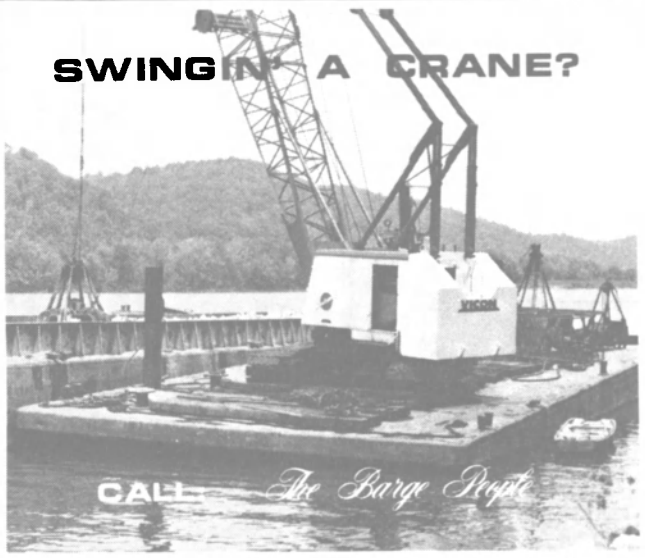
Length	37 m - 121.4′	**Capacities**	
Breadth	9.5 m - 31′	Fuel Oil	110 m3
Depth	2.5 m - 8.2′	Fresh water	10 m3
Draft (normal operating)	1.7 m - 5.6′	Lube oil	1.3 m3

Propulsion		Auxiliary machinery	Main generators: ASEA	Steering engine	Stork-Jaffa
Main engine	Two "Brons" diesels, 12 cylinder model 12 GV 1200 hp/375 Rpm each direct reversible		Two 152 kva 370/220 volt 3 phase 50 hertz Driven by Scania OS 11 diesel engines	**Spare parts**	Two propels Four blades One propeller shaft

For more information please contact:

European Waterway Transportation Ltd. (EWT)
Technical Department
Westerkade 2
3016 CL ROTTERDAM (Holland)

Phone: (010) - 36 64 22 **Telex: 21383**



McDONOUGH
MARINE SERVICE

24 HOUR SERVICE

BARGES FOR RENT
ALL TYPES & SIZES

NEW ORLEANS	HOUSTON	PARKERSBURG
(504) 949 7586	(713) 452 5887	(304) 485 4494
TELEX 58 4393		TELEX 86 9412
P O BOX 26206	P O BOX 233	P O BOX 1825
NEW ORLEANS LA 70186	CHANNELVIEW TEX 77530	PARKERSBURG W VA 26101

---

5 each Ingersoll-Rand
SPA 500 Pac Air Compressors
2100 CFM; 150 PSI; 2300 volts; 500 HP.
Oil separator; water separator and dryer.
CONTACT 504 361 0157 — Tasco, Inc.

FOR SALE
TUG — OFFSHORE SUPPLY VESSELS

1. 4800 H.P. TWIN SCREW TUG—127' X 32' X 17', 1967, NET=132T, GROSS=172
2. 1040 H.P. OFFSHORE SUPPLY VESSEL—132' X 32' X 12', TWIN SCREW, NET=135, GROSS=199, 2 CAT D397
3. 1560 H.P. OFFSHORE SUPPLY VESSEL—145' X 35' X 11.5', 1963, TWIN SCREW, CAT D-379
4. 2340 H.P. OFFSHORE SUPPLY VESSEL—157' X 36' X 12', 1965, TWIN SCREW, CAT D-398
5. 501 KC DETROIT ALLISON TURBINE—NEW

Steven Man
General Precision Corporation
9 North Hill Court
Oakland, CA 94618
Tel: 415-339-1235
Twx: 910-366-2004 Precision Oak

SHIP LAY-UP FACILITIES
TENSAW RIVER DOCK & STORAGE YARD
UP RIVER FROM MOBILE, ALABAMA
FORMERLY U.S. GOVERNMENT RESERVE FLEET
FRESH WATER ANCHORING
440 A/C — FIRE PROTECTION — SECURE AREA

CALL FOR RATES
205/937-6338 or 205/438-3573

FAIRLEADS

$2950

NEW — UNUSED 4-ROLLER TYPE
UNIVERSAL SHIPBOARD FAIRLEADS

Opening between vertical rollers 10" — between horizontal rollers 4". Roller size 7½" — pin size 2½". Rollers 24" long. Extended legs for welding to deck. All are 18¼" x 33½" at top angled to 44" x 46½" at bottom. ⅞" Steel. Rollers have grease fittings. Plans available on request. SUITABLE FOR VESSELS UP TO 200,000 TONS. WIRE SIZE UP TO 5" CIRCUMFERENCE OR 95 TONS, NORMAL BREAKING STRENGTH. MAXIMUM LEAD 80°.

6 ROLLER TYPE
MOORING FAIRLEADS
WITH 12" CLEAR OPENING

$2750

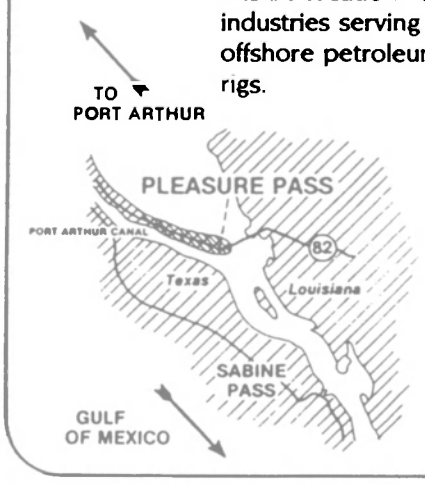
4 Vertical rollers — 5½" diameter—2 horizontal rollers—5½" diameter, split to enable working from either end of fairlead. Steel sideframe ¾"—top & bottom 1". Handles 1½" wire easily—up to maximum lead 80°.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

SABINE CHANNEL FRONTAGE

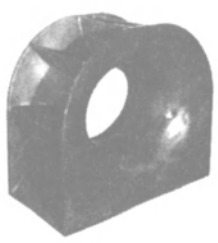
Marine Industrial waterfront property on Sabine Ship Channel. Only a few miles from Gulf of Mexico.

CALL TODAY for more information about this #1 location—ideal for industries serving the offshore petroleum drilling rigs.



CALL TRIANGLE MARINE (713) 722-1922 or TELEX: 792-705

EXTRA HEAVY DUTY
EXTRA LARGE PANAMA CHOCKS



Clear opening 16" X 20" — 10" Radius. 36½" High — 40½" long.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

FOR SALE

C4-S-A1 TYPE CARGO SHIP EQUIPMENT
FROM BETHLEHEM-BUILT EX-"YORKMAR"

- ROTOR: 400 KW Worthington-Moore Steam Turbine
- TURBINE: Type S-6 — 6097 RPM — 7-Stage — very good condition — with ABS
- REDUCTION GEAR: 14X10—6097/1200 RPM—with ABS

FROM BETHLEHEM-SPARROWS POINT
BUILT TANKER
13,750 HP

- L.P. ROTOR: Built by Bethlehem — 21-stage — 6250 HP at 2100 RPM — weight 27,725 lbs.
- TURBO GENERATOR: 400 KW De Laval-Westinghouse TURBINE: De Laval — 585# 840° — type CD — 5905 RPM — 7-stage
  GEAR: Type KD — 5905/1200 RPM
  GENERATOR: Westinghouse—Frame 6-39-11—400 KW WILL SELL ROTOR — GEAR — STATIONARY BLADING ELECTRIC GENERATOR COMPONENTS SEPARATELY

- Westinghouse 400 KW Turbo Generator Set
  TURBINE: 10A4462-4 — 9018 RPM — Instr. Book 1430-C-36 — Rotor and stationary blading available
  GOVERNOR: Available
  GENERATOR: Westinghouse Model 66-39-11 — #3547P706
  GEAR: Sold

ALL THE ABOVE AVAILABLE AS PARTS

MISCELLANEOUS

Condenser Tubes — new — 110, each 26' long
RECONDITIONED PUMPS READY WITH ABS

- 1 Aux. Vertical Centrifugal Condensate—size 1½CV11 — 40 GPM — 191' head. Motor available: 10 HP — 1750 RPM — 440/3/60
- 1 De Laval IMO Fuel Oil Service Pump type 2½-2M-31H — 24 GPM — 350# — 875/1750 RPM — ready, with ABS. Motor available: 7½/15HP — Frame 364 — type CSP — 870/1775 RPM — 440/3/60

ALSO IN STOCK

- Fire and General Service Pump
- Wash Water Pump

FORCED DRAFT FAN MOTOR

- Westinghouse — Frame 505 — 83/21 HP — 440/3/60 — 99.5/39.5 amps — 1766/885 RPM — 24-hr. duty temp. 40°C. In stock. ABS ready.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

15½" CLEAN BRASS
4-DOG MARINE
PORTLIGHTS
15½" CLEAR OPENING

Recently carefully hand removed from ocean vessels. Suitable for re-use on shipyard conversions or for marine ornamental use. Heavy marine standard glass . . . clear or can be furnished frosted for use in special locations.

THE BOSTON METALS COMPANY
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

SOLD Through your CHANDLER

99.99 + % pure **ZINC** For Cathodic Protection

Meets Military Spec. Mil-A-18001 (ships)

Anodes • Bars • Circles • Rings • Rods IN STOCK

SMITH and McCRORKEN, Inc.

153 Franklin St. Dept. MR
New York, N.Y. 10013

Call (212) 925-2170
FOR FAST DELIVERY

NEW U.S. MARAD-TYPE AXIAL FLOW FANS

(3) 10,500 CFM Model AF-100, "Baldor" 5 HP motor — 440/3/60 — 40° — 1750 RPM — 7 amps.

(1) Same as above, but 2-speed 1750/750 RPM — Frame 184TCZ

(2) 12,880 CFM — Size 15AF — Baldor Motor — 7.5/1.9 HP — 440/3/60 10/3.5 amps — 1750/880 RPM — 40°C — Frame 215TCZ

20,000 CFM — 1.9" SP — Size 200AF — 10 HP — 440/3/60 — 1750/880 RPM

(2) 40,665 CFM — size 43AF — 60 HP Baldor Motor — 440/3/60 — 1760 RPM — 75 amps — 50° rise — Frame 364TZ Ins. F

(1) 6000 CFM — AF40 — Baldor Motor — 3 HP — 440/3/60 — 1750 RPM — Ins. F — 40°C — Frame 182TCZ

(3) 2000 CFM — size 20AF — .75 HP — 440/3/60 — 3450 RPM 1.3 amps — Ins. F — 40°C — Frame 560Z.

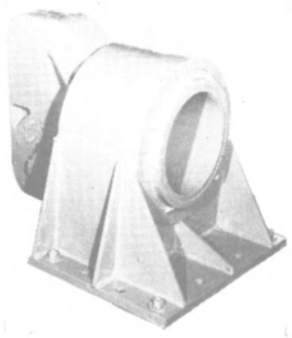
THE BOSTON METALS COMPANY

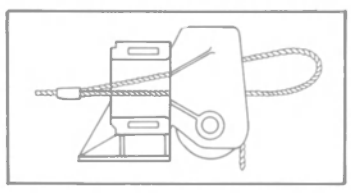
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW SURPLUS BERGER MODEL 614-0 MOORING FAIRLEADS

for 1¼" WIRE — DECK MOUNTED

12" Opening Allows for Large Wire Rope Loop





14" Diameter sheave — 12" shank opening — tapered roller bearing. Weight 1135 lbs.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

SOFTECH
THE SOFTWARE TECHNOLOGY COMPANY
CAD & CAM Systems Technology

460 Totten Pond Rd., Waltham, MA 02154 (617)890-6900, 1-800-225-8854

ELECTRICAL MARINE CABLE SPECIALISTS

• Large Inventory • Coast Guard & Navy specs.

UNIVERSAL WIRE & CABLE CO.

• HOUSTON 713-923-2527

And Other Cities Coast to Coast!

OUR WAREHOUSE IS REALLY HATCH CITY!

IT'S THE ONLY PLACE TO LOOK FOR THE WATERTIGHT HATCHES & DOORS YOU NEED

24" I.D. MAN-WAY 3-DOG HATCHES

18" Coaming. Available with T socket wrench or removable handwheel (can be welded in place) for top opening. Spring-loaded lid w/inside handwheel. Coaming 12mm thick, top 11mm. Bosmet drawing #64/55

21" I.D. MAN-WAY 3-DOG HATCHES

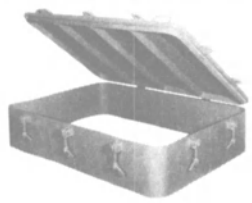
10" Coaming. Available with T socket wrench or removable handwheel (can be welded in place) for top opening. Coaming 12mm thick, top 11mm. Bosmet #64/55

TANKER EXPANSION TRUNK

36" Diameter — 26" coaming — 7-Dog drop-bolts. Drawing #36/26

20" ROUND HATCH

18" Coaming — 3 brass dog drop bolts. Coaming 12mm thick — top 11mm. Bosmet #68

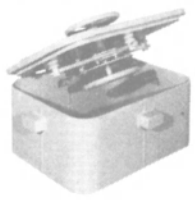


CARGO HATCHES

48" x 36" x 5" 48" x 48" x 9"
66" x 81" x 12" 72" x 72" x 12"
72" x 74" x 12"

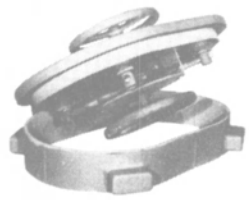
FLUSH HATCHES

24" x 30" 30" x 30"
4 Dogs bottom — T-key top opener. 4" Maximum coaming. Coaming 8mm thick — top 7mm.



QUICK-ACTING 4-DOG HATCHES

Heavily constructed. Handwheel operated. Handwheels top & bottom. Size A: 27" x 21" w/12" coaming. Size B: 31" x 31" w/12" coaming. For ocean-going barges, etc.

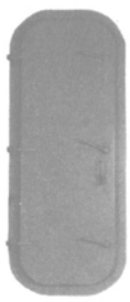


QUICK-OPENING HATCH

Handwheel top & bottom. 4 Dogs. 16" x 24" with 5" coaming. Drawing #60-40

CLEAR OPENING

26" x 78"
and
30" x 78"



FUME & WEATHERTIGHT DOORS

GENERAL PURPOSE HATCH

15" x 23" x 5"
4-DOG
ALL-BRASS
FITTED

6-DOG WATERTIGHT DOORS

32" x 54" Clear opening. 10" Deadlight. As carefully removed from Alcoa "Seaprobe"

IMMEDIATE DELIVERY ON THE HATCHES YOU ORDER

Inquire about doors and hatches not listed here!

WE HAVE MANY MORE IN STOCK

THE BOSTON METALS COMPANY

MAIN OFFICE: (301) 539-1900 WAREHOUSE (301) 752-1077
313 E. Baltimore St. TWX: 710-234-1637 Baltimore, Md. 21202 U.S.A.

For Sale or Charter at Zidell

AVAILABLE FOR IMMEDIATE DELIVERY

Z Big 1

FOR WORLDWIDE USE

A.B.S.
Classed Maltese Cross A-1
International Load Line

U.S.C.G.
Oceans
Certificate of Registry
Gross Tons — 8914
Panama Canal Tonnage Certificate

Length	400'0"
Beam	99'6
Depth	25 0"
Deadrise	27"
Draft Light	3'11"
Draft Loaded	19'4"
Transverse Bulkheads	5 O.T.
Length Bulkheads	3 O.T.
No. Tanks	20
Rolled Bilge	48" R.
Mich. Bow	60' length
Sq. Raked Stern	80' length

DECK CARGO

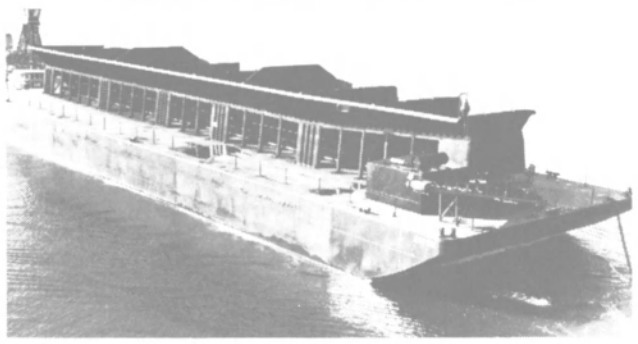
Open Deck Area	37,886 S.F.
Deck Load	1,500 P.S.F.
D.W.T.	18,500 L.T.

AS OIL BARGE

Oil Cargo	150,000 BBL's 21,000 L.T.
Cargo Piping	14" Mains 10" Suctions

AVAILABLE DECEMBER 14, 1981

Self Unloading Aggregate Barge



ZAG-501

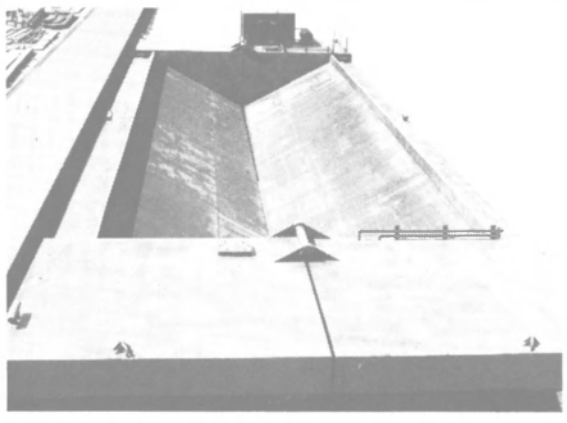
Length (O.A.)	248'- 0"
Beam	63'- 0"
Depth	16'- 0"
Displacement Light	1010 S.T.
Draft Light (F.W.)	2'- 7½"
Draft Loaded (F.W.)	11 - 8"
DWT	4000 S.T.
Diesel Electric Set	100 KV
Hopper Volume	2667 cu. yd.

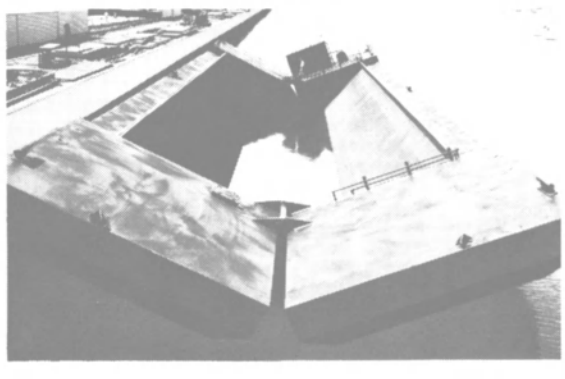
Hopper Unloading Gates: 27-36" x 36" Horiz. sliding gates w/individual hydr. controls.

Main Unloading Conveyer: 48" wide belt, 30 H.P. elect. motor, 250 ft./min. Max. disch. rate – 667 cu. yd./hr.

Transfer Conveyer: 42" wide belt, 10 H.P. elect. motor, 350 ft./min. off loading location – Stbd. side fwd. at 9 ft. above deck.

Hull Plating: Deck, side shell & bott. 9/16"





Split Type Self Dumping Scows

Built 1979. For sale, long or short term charters

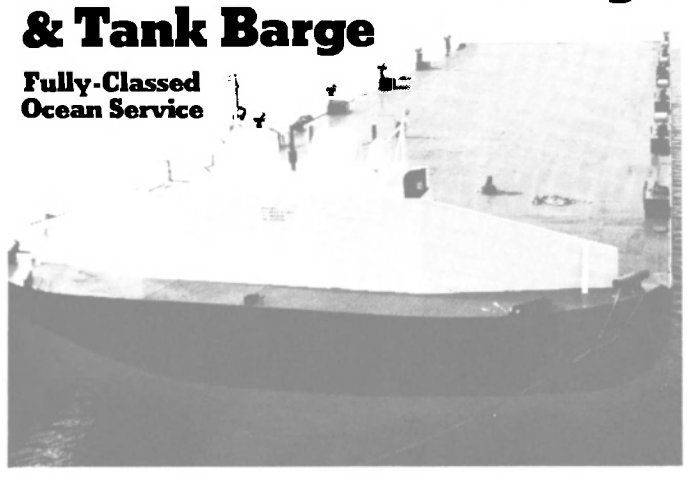
SPECIFICATIONS

ABS loadlined for USCG-approved offport dumping

Length (ML'D)	180' - 0"
Beam (ML'D)	50 - 0
Depth of Mid-Body (ML'D)	14'- 0"
Hopper Length (ML'D)	128'- 0"
Level Hopper Volume	1421 cu. yd.
DWT @ d = 10.22 ft.	1615 L.T.
Rake Lengths F. & A.	26'- 0"
Twin Skegs	
Stern & Fwd. Rake Decks Stepped up	2'- 0"
Engine GM 671	
Hydraulic Pumps (2) 12 GPM & 75 GPM	
Time To Open (Fully Closed to Fully Open)	6 Min. 5 Sec.
Time To Close	4 Min. 34 Sec.
Hopper Angle Fully Open	53.78°
Fuel Tank Capacity	445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)	18" Diam. 120"Stroke
Plating	
Side	9/16"
Bottom	5/8"
Hopper	5/8"

Combination Deck Cargo & Tank Barge

Fully-Classed Ocean Service



230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A.	230'- 0"
Beam	60'- 0"
Depth	15'- 6"
Deadrise	6"
Number of Tanks	10
Total Tank Volume @ 95%	24,000 BBL
Cargo Pumps	Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating	1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location	Below Deck Pumproom in Fwd. Rake
Diesel Engines	Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location	Above Deck in Fwd. Deckhouse
Fuel Capacity	1400 Gal.
Fill & Disch. Connections	8' ANSI 150# FLG P/S
Heating Coils	2" Sch. 80 Pipe For Shore Steam
Hull Plating	Deck ½", Side Shell 3/8", Bott. 3/8", Shear Strake ½"
Deck Cargo Dwt. at Loadline	3900 S.T.

For additional information or to make an appointment to inspect, call or write:
Tom Sherwood, Andy Canulette, Jr., or Dan Rogers

ZIDELL

ZIDELL EXPLORATIONS, INC.
3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes — 70-foot Track Span

(CAN BE WIDENED TO 100 FEET)

Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4–150 HP–240 Volt DC Hoist Motors
4–150 HP–240 Volt DC Gantry Motors
2–265 KW–500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:
1) Moving heavy equipment
2) Dam Sites
3) Concrete Prefab plants
4) Railroad yards
5) Steel plants

Geared Track is also available at extra cost

American Crane Barge

BARGE DATA

Displacement Light	1,200T
Gross Tonnage	911
Net Tonnage	911
Length	151 - 6"
Beam	60' - 0"
Hull Depth	12' - 0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., ⅞"C – 6 x 36 I.P.S.
4 part standing standing bail	2-186 ft., 1¾"C – 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part rigg.)	
20 part rigging	3,250 ft., 1"C – 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., ⅞"C – 6 x 66 I.P.S.

FOUR 30-TON

Container Cranes

70-foot Track Span

NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACECO. Suitable for Ship, Barge or Land Use. Manufactured to ABS and MARAD requirements.

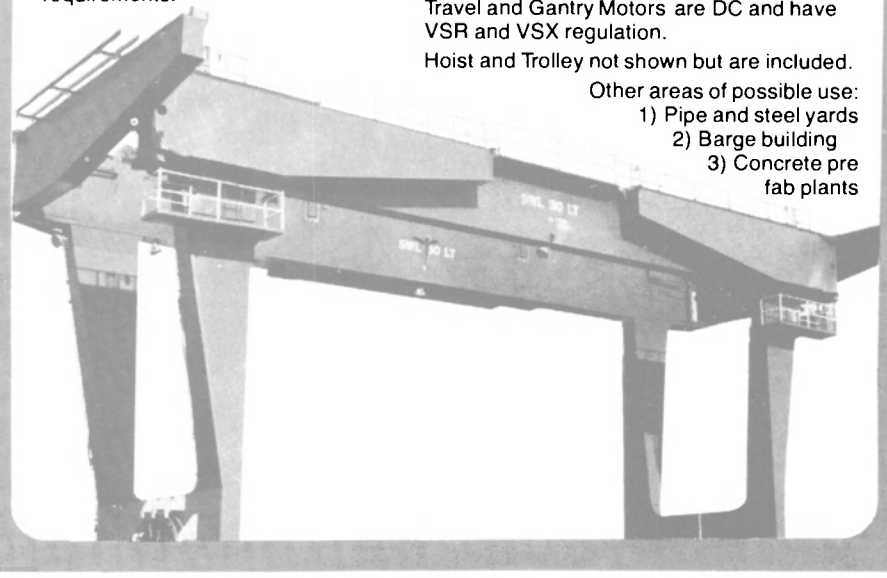
AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:
1) Pipe and steel yards
2) Barge building
3) Concrete pre fab plants



For additional information, brochures or inspection, call: Tom Sherwood, Andy Canulette, Jr., or Dan Rogers

ZIDELL

ZIDELL EXPLORATIONS, INC.
Hugh Sturdivant, Sales Manager
3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

Marine Outboard Diesel

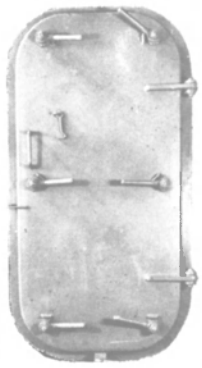
29 BROADWAY
SUITE 1601
NEW YORK
N.Y. 10006

ANKER MARINE PAINTS

WORLD
WIDE
DISTRIBUTION

FOR SALE

NEW WATERTIGHT DOORS



Steel Dogs

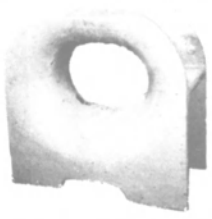
6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY



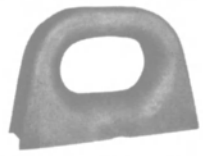
NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base — length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

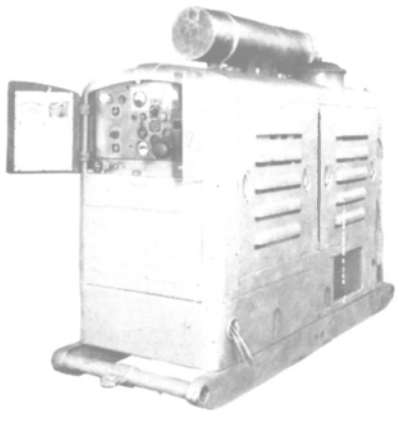
NEW UNUSED 12"X6½" PANAMA CHOCKS FOR SMALL VESSELS



Closed chocks — 12" X 6½" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

30 KW GM 3-71 DIESEL GENERATOR SETS

with self-contained fuel tank and switchboard



$7450

30KW Delco generator—80% P.F. GMC 3-71 diesel has 24 volt electric starter, with oil, amps & temp gauges, alternator and muffler. Generator equipped with main circuit breaker, voltage regulator, voltmeter, ammeter, frequency meter. 220/440/3/60—1200 RPM. Dry weight 4950 lbs. 100" long x 34" wide x 78" high.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077

1981 — MARINE SURVEY PRACTICE COMPENDIUM — By R.A. Cady — $54. pp
Other guides for Surveyors & Port Engineers available.
MARINE SURVEY PRESS — Box 9307
Mobile, Ala. 36691 U.S.A.

CROUSE HINDS 1000 WATT FLOODLIGHTS

IN STOCK

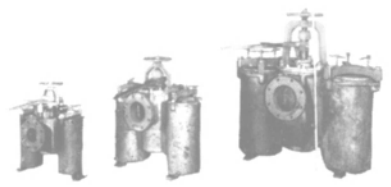
NEW — UNUSED

HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW — UNUSED DUPLEX STRAINERS



Available from cancelled sea-going barge construction contract.

- (1) 4" — Bronze strainer baskets for water. Can furnish Type 50 for oil.
- (2) 8" — Steel strainer baskets for sea water — Type 50

Mfg. by Hayward

BIG DISCOUNT PRICES

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

THE DIESEL DEAL OF THE YEAR!

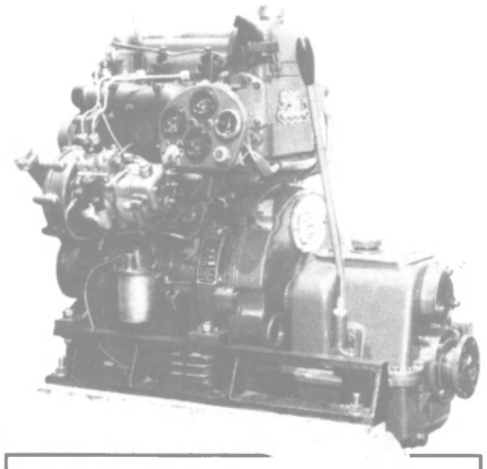
20 HP Marine Diesel Engine

Complete with 2.1:1 Gear, 2 Batteries, Tools and Maintenance Spare Parts

SPECIAL INTRODUCTORY PRICE
$1749
F.O.B. BALTIMORE

OUR SERIES 90

perfect for powering small pleasure, fishing and commercial boats, auxilliary engine use, etc.



CHECK THE SPECS!

- Cylinders 2
- Max. rated HP 20
- Rated RPM 2000
- Fuel Consumption at rated output approx. ..... 2 gal/hr
- 12-Hr. SHP output rating ..... 18.4 HP
- Approx. speed of output shaft at rated RPM:
  - Forward 712
  - Reverse 735
- Rotation: Clockwise when running forward and viewed from output end of shaft

FACTORY NEW — IN CRATES — AND COMPLETE WITH INSTRUCTION BOOK, PARTS LIST AND PERFORMANCE CURVES

Precision made and beautifully crafted, our series 90 marine diesel is a rugged power plant. Versatile, compact and dependable, it's an exceptional engine. At 880 lbs (400Kg) it's a surprisingly light high-speed 2-cyl. 4-cycle diesel. Water-cooled with a non-ferrous heat exchanger and sea water pump, it's equipped with reverse reduction gear box.

While possible from our warehouse inventory, we offer

IMMEDIATE DELIVERY

We are your Direct Factory Outlet nearest to Gulf and Florida Ports

THE BOSTON METALS COMPANY

MAIN OFFICE: (301) 539-1900 **WAREHOUSE (301) 752-1077**
313 E. Baltimore St. TWX: 710-234-1637 Baltimore, Md. 21202

BUYERS DIRECTORY

AIR CONDITIONING AND EVAPORATORS

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 2341 Jefferson Davis Hwy., Suite 1100,

For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes 70-foot Track Span

(CAN BE WIDENED TO 100 FEET)

Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4–150 HP–240 Volt DC Hoist Motors
4–150 HP–240 Volt DC Gantry Motors
2–265 KW–500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:
1) Moving heavy equipment
2) Dam Sites
3) Concrete Prefab plants
4) Railroad yards
5) Steel plants

Geared Track is also available at extra cost

American Crane Barge

BARGE DATA

Displacement Light	1,200T.
Gross Tonnage	911
Net Tonnage	911
Length	151'- 6"
Beam	60'- 0"
Hull Depth	12'- 0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft
Office & Eating Area	136 Sq. Ft
Diesel Fuel Tanks	36,000 Gal
Fresh Water Tanks	36,000 Gal
Bunker "C" Fuel Tanks	12,000 Gal
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., ⅞"C – 6 x 36 I.P.S.
4 part standing standing bail	2-186 ft., 1¾"C – 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100', 8 part. rigg.)	
20 part rigging	3,250 ft., 1"C – 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., ⅞"C – 6 x 66 I.P.S.

FOUR 30-TON

Container Cranes

70-foot Track Span

NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACECO. Suitable for Ship, Barge or Land Use. Manufactured to ABS and MARAD requirements.

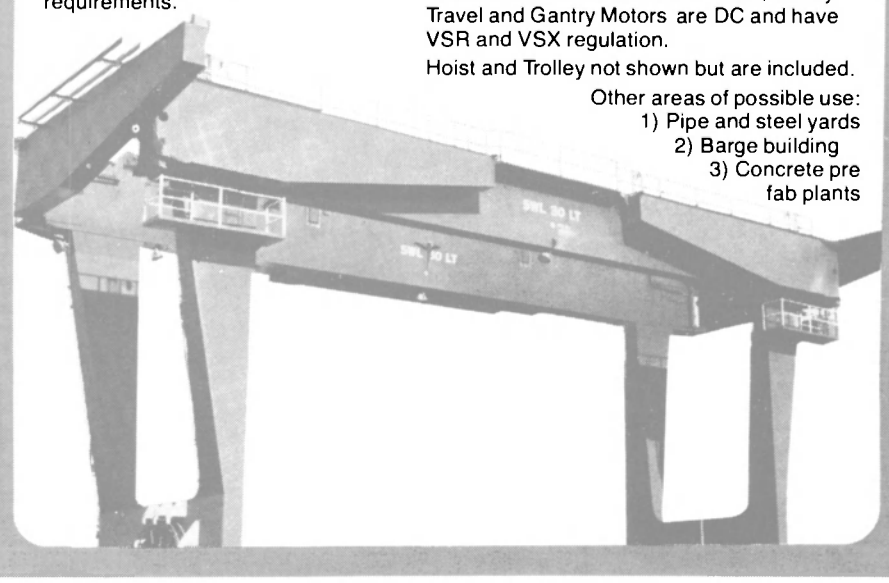
AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:
1) Pipe and steel yards
2) Barge building
3) Concrete pre fab plants



For additional information, brochures or inspection, call: Tom Sherwood, Andy Canulette, Jr., or Dan Rogers

ZIDELL

ZIDELL EXPLORATIONS, INC.
Hugh Sturdivant, Sales Manager
3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

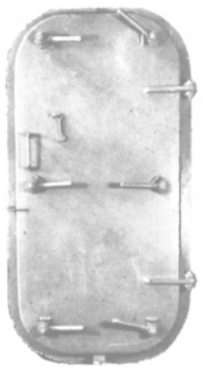
29 BROADWAY
SUITE 1601
NEW YORK
N.Y. 10006

ANKER MARINE PAINTS

WORLD
WIDE
DISTRIBUTION

FOR SALE

NEW WATERTIGHT DOORS



Steel Dogs

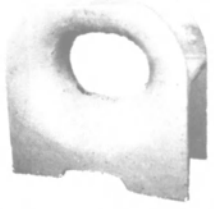
6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE

26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR

IMMEDIATE DELIVERY



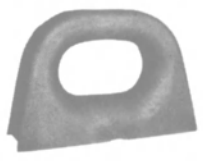
NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base—length 28" — height 27¼". IMMEDIATE DELIVERY FROM STOCK.

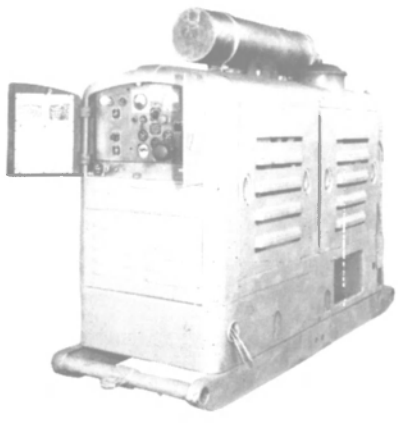
NEW UNUSED 12"X6½" PANAMA CHOCKS FOR SMALL VESSELS



Closed chocks — 12" X 6½" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

30 KW GM 3-71 DIESEL GENERATOR SETS

with self-contained fuel tank and switchboard



$7450

30KW Delco generator—80% P.F. GMC 3-71 diesel has 24 volt electric starter, with oil, amps & temp gauges, alternator and muffler. Generator equipped with main circuit breaker, voltage regulator, voltmeter, ammeter, frequency meter. 220/440/3/60—1200 RPM. Dry weight 4950 lbs. 100" long x 34" wide x 78" high.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

1981 — MARINE SURVEY PRACTICE COMPENDIUM — By R.A. Cady — $54. pp
Other guides for Surveyors & Port Engineers available.
MARINE SURVEY PRESS — Box 9307
Mobile, Ala. 36691 U.S.A.

CROUSE HINDS 1000 WATT FLOODLIGHTS

IN STOCK

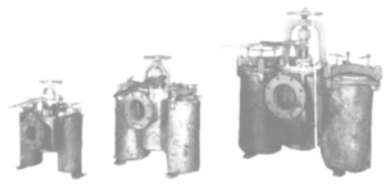
NEW — UNUSED

HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW — UNUSED DUPLEX STRAINERS



Available from cancelled sea-going barge construction contract.

- (1) 4" — Bronze strainer baskets for water. Can furnish Type 50 for oil.
- (2) 8" — Steel strainer baskets for sea water — Type 50

Mfg. by Hayward

BIG DISCOUNT PRICES

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

THE DIESEL DEAL OF THE YEAR!

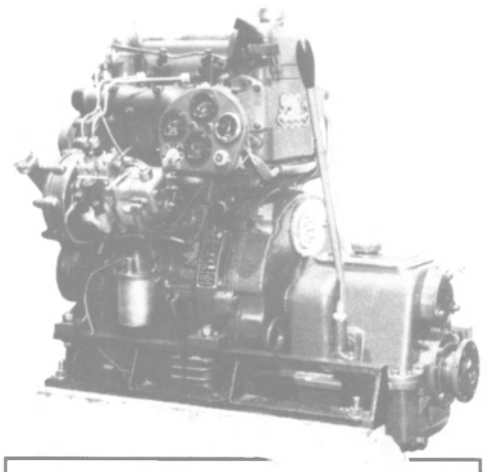
20 HP Marine Diesel Engine

Complete with 2.1:1 Gear, 2 Batteries, Tools and Maintenance Spare Parts

SPECIAL INTRODUCTORY PRICE
$1749
F.O.B. BALTIMORE

OUR SERIES 90

perfect for powering small pleasure, fishing and commercial boats, auxilliary engine use, etc.



CHECK THE SPECS!

- Cylinders 2
- Max. rated HP 20
- Rated RPM 2000
- Fuel Consumption at rated output approx. ..... 2 gal/hr
- 12-Hr. SHP output rating ..... 18.4 HP
- Approx. speed of output shaft at rated RPM:
  - Forward 712
  - Reverse 735
- Rotation: Clockwise when running forward and viewed from output end of shaft

FACTORY
NEW — IN CRATES — AND
COMPLETE WITH INSTRUCTION
BOOK, PARTS LIST AND
PERFORMANCE CURVES

Precision made and beautifully crafted, our series 90 marine diesel is a rugged power plant. Versatile, compact and dependable, it's an exceptional engine.

At 880 lbs (400Kg) it's a surprisingly light high-speed 2-cyl. 4-cycle diesel. Water-cooled with a non-ferrous heat exchanger and sea water pump, it's equipped with reverse reduction gear box.

While possible from our warehouse inventory, we offer

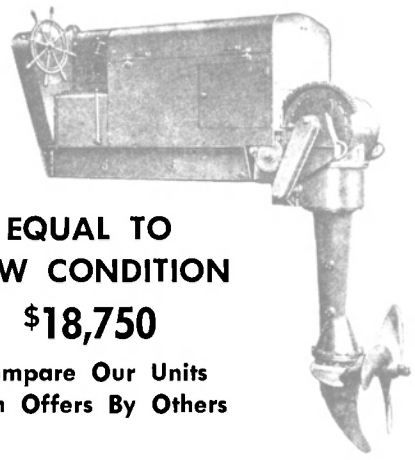
IMMEDIATE DELIVERY

We are your Direct Factory Outlet nearest to Gulf and Florida Ports

THE BOSTON METALS COMPANY

MAIN OFFICE: (301) 539-1900 WAREHOUSE (301) 752-1077
313 E. Baltimore St. TWX: 710-234-1637 Baltimore, Md. 21202 U.S.A.

M&T Model O-2D Marine Outboard Diesel Driven Propulsion Units



EQUAL TO NEW CONDITION

$18,750

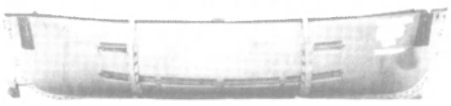
Compare Our Units With Offers By Others

Equal-to-new-condition. Driven by GM 6-71 diesel—165 HP @ 1800 RPM—2-cycle—6 cylinders. Weight 9300 lbs—48" X 24" propeller. Unit shown with outboard shaft in running position. Distance from deck to bottom of skeg 89". 4 Units immediately available.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

FIBERGLASS 53 PERSON DIESEL POWERED LIFEBOATS



- Length overall 8 M. (26.24')
- Beam over fenders 2.89 M (9.5')
- Beam over outside shell 2.75 M (9')
- Depth 1.15 M (3.7')
- Empty boat weight 2380 Kg (5247 lbs)
- Boat weight w/passengers 6355 Kg (14,010 lbs)
- Cubic ft. per passenger 15.31
- Distance between hooks 6700 MM (21' 11½")

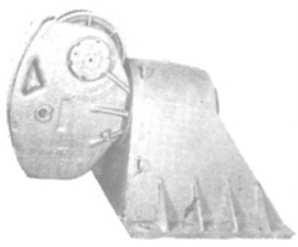
MFG. BY FR FASSMER & CO., GERMANY.

With air-cooled Deutz diesel engine, gear box and propeller. Has fuel oil and water tanks, provision storage. Built to German Lloyds requirements. #6706 built 1977; #6859 built 1977.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

SURPLUS BERGER FAIRLEADS



2 Model 620 — for 1⅝" wire — 20" sheave.

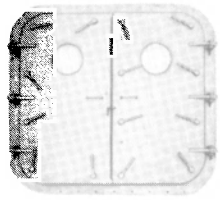
$3500

Also 1 for 1¼" wire

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

60" X 54" WATERTIGHT STEEL DOUBLE DOORS



Used doors — with 10" diameter lites. Each door has 7 dogs for a total of 14.

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

49¢ Per Pound

NEW — UNUSED 2¾" STUD LINK CHAIN

WITH CERTIFICATES

20 Shots—grade 2—49¢/lb. Each shot weighs 6450 lbs.

Connecting links for above chain — $575 each

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW — UNUSED 32' ALUMINUM ACCOMMODATION LADDERS

Mfg. by Ramp Master. With 24" wide treaded aluminum steps. Self-feathering — with lower platform and safety rails. (Turntables not available.) New from factory, ladder only would be approximately $10,500 and lower platform $450.

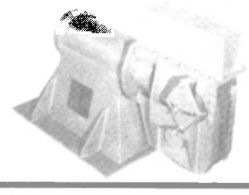
OUR PRICE **$5995** (New turntables cost about $3300)

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

NEW BALANCED HEAD FAIRLEADS

1¼" **$2775**

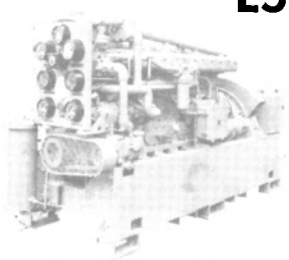


1½" **$3350**

THE BOSTON METALS COMPANY

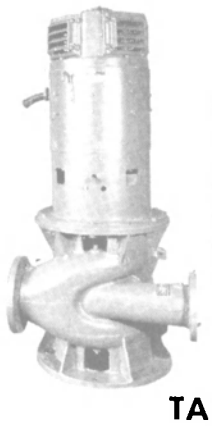
313 E. Baltimore St. Baltimore, Md. 21202
Marine Warehouse (301) 752-1077
TWX: 710-234-1637

LST MACHINERY



100KW GBD-8 DIESEL GENS.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl—5½X7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high—42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.

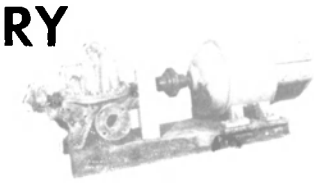


GARDNER-DENVER BALLAST PUMP

Bronze — 1500 GPM — 56' head or 25 bs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40°T rise — stab. shunt — ballbearing — dripproof. Controls available.

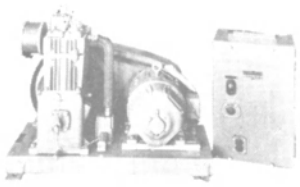
TAILSHAFTS

Diameter: 6 1/8" Length: 21' 2 5/8"



GOULD FIRE & BILGE PUMP

250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2½ X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.

COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1½"X1½")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1½") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40°C temp rise. Ball bearing.

THE BOSTON METALS COMPANY

313 E. Baltimore St. 752-1077 Baltimore, Md. 21202
TWX: 710-234-1637

BUYERS DIRECTORY

AIR CONDITIONING AND REFRIGERATION—REPAIR & INSTALLATION
Adrick Cooling Corporation, 30 B. Remington Blvd., Ronkonkoma, NY 11779
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
James D. Nall Co., Inc., 3195 NW 20th Street. Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection
Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield. Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment
Aurand, 1270 Ellis Street, Cincinnati, OH 45223
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
Goff Corporation, One Pleasent Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning
Clayton Manufacturing Company, 486 No. Temple City Blvd., El Monte, CA 91731
Combustion Engineering, Inc., Windsor, Connecticut 06095
A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BROKERS
Aldenships, 2182 S.E. 17th Street, Fort Lauderdale, FL 33316
B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

BUNKERING SERVICE
Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHAINS
Neptunia, Via Giovanni da Verrazzano, 12 16 165 Genova, Italy

CHOCKING SYSTEMS
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CONTROL SYSTEMS—Monitoring
Arnessen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33431
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Pan American Systems Corporation, P.O. Drawer 400, Belle Chasse, LA 70037
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

COUPLINGS
Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS
American Hoist & Derrick Company (AMHoist), St. Paul, MN 55107
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
M. P. Howlett, Inc., 410 32nd St., Union City, N.J. 07087
National Supply Company, 1455 West Loop South, Houston, TX 77027
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

DECK MACHINERY—Cargo Handling Equipment
Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
Navire Cargo Gear (SEA) Pte. Ltd., 9th Floor Orchard Towers, Orchard Road, Singapore 0923

DIESEL ACCESSORIES—CYLINDER LINERS
B & W Marine Service, One State Street Plaza, New York, N.Y. 10004
General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golten Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231
Haynes Corporation, P.O. Box 179, Jackson, MI 49204
Twin Disc, Inc., 1328 Racine Street, Racine, WI 53403

ELECTRICAL EQUIPMENT
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Federal Pacific Electric Company, P.O. Box 1800, Somerville, NJ 08876
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS
Cleanodan A S, N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906
Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine
ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
Consafe Inc., P.O. Box 40339, Houston, TX 77040
Duraline, 75 Hoffman Lane, Central Islip, NY 11722
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon. N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
John P. Nissen, Jr. Company, Glenside, PA 19038
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco. CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Stal Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Unitor Ships Service A/S, Mastemyr, 1410 Kolbotn, Norway
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186
Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150
Zesco, Inc., 3694 Westchase Drive, Houston, TX 77042

EVAPORATORS
Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
Riley-Beaird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS — METALS
Fibergrate Corporation, P.O. Box 344610, Dallas, TX 75234
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS
Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel
Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing
Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FUEL OIL ADDITIVES—Analysis & Combustion Testing
Rolfite Products Inc., 300 Broad Street, Stamford, CT 06901
XRG International, Inc., 4125 S.W. Martin Hwy., Stuart, FL 33494

FURNITURE
Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT
Kiefer Corporation, 2202 W. Clybourn, Milwaukee, WI 53233

GANGWAYS
Rompmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311
W & A Engineers, Inc., 4040 Veterans Highway, Metairie, LA 70002

HATCH & DECK COVERS—Chain Pipe
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
E. Mock & Sons, Inc., 20 Vesey Street, New York, NY 10017

HULL CLEANING
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS
Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems
ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredriksstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022
Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY

INSULATION—Cloth, Fiberglas
Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE
Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER—Watertight Doors—Paneling
Masonite Commercial Division, Dover, OH 44622
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS
R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LIFEBOATS & DAVITS
ATCO Marine Corporation, 603 Dean Street, Brooklyn, NY 11238
Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights
Browning Marine, Inc., (Aqua Signal), P.O. Box 806G, St. Charles, IL 60174
The Guest Corporation, 17 Culbro Drive, West Hartford, CT 06110
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

MACHINE TOOLS
Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING
General Electric Company — Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS
Baldt Incorporated, P.O. Box 350, Chester, PA 19016
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAME PLATES—PLAQUES—BRONZE—ALUMINUM
Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS
Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Agemar, Ave. 17 No. 108-129, P.O. Box 1465, Maracaibo, Venezuela
All Points Associates, Inc., RD #1, Box 3309, Monroeville, OH 44847
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Jacksonville, Florida 32211
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd.,
CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026
Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129
Designers & Planners, Inc., 2341 Jefferson Davis Hwy., Suite 1100, Century Bldg., Arlington, VA 22202
Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Francis C. Ducote, P.E., P.O. Box 644, Kenner, LA 70063
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034
Christopher J. Foster, Inc., 16 Sintsink Drive East, Port Washington, N.Y. 11050
Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112
Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401
Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006
John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110
The Glosten Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104
Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480
Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107
Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505
J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048
Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545
Hydronautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810
Juntzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227
James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133
Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460
Lucander Designs, P.O. Box 711, San Perlita, TX 78590
Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063
John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048
MacLear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036
Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114
Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746
Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424
Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106
Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225
Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307
George E. Meese, 194 Acton Rd., Annapolis, Md. 21403
Metritape, Inc., 33 Bradford Street, Concord, MA 01742
NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202
Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169
Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104
Captain Conrad P. Nilsen, 66 Beverly Road, Bloomfield, NJ 07003
Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104
Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114
Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211
Oromar International Enterprises, Inc., P.O. Box 13069, Port Everglades, FL 33316
PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117
Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112
Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156
S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317
Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716
M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.
Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130
Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316
Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003
Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426
George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007
T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2
R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235
Robert L. Stevens Associates, Inc., 654 Beacon Street, Boston, MA 02215
Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963
Thames Engineering Consultants Inc., P.O. Box 589, New London, Ct. 06320
Timsco, 622 Azalea Road, Mobile, AL 36609
Townsend Marine Consultants, 18 Church Street, Georgetown, CT 06829
Wadam Wartsila Helsinki Shipyard, P.O. Box 132, SF-00151 Helsinki 15, Finland
Wesley D. Wheeler Assoc., Ltd., 104 E. 40th St., Suite 206, New York, NY 10016
James Weisbeck, 240 O'Kell Street, Buffalo, NY 14220
Thomas B. Wilson, 920 North Avalon Blvd., Wilmington, CA 90744
Wind Ship Development Corporation, 690 Main Street, Norwell, MA 02061
Wink Incorporated, 8020 Mayo Blvd., New Orleans, LA 70126
XPLO Corporation, 229 Fifth Street, Gretna, LA 70053

NAVIGATION & COMMUNICATIONS EQUIPMENT
AAT Communications Corporation, 1854 Hylan Blvd., New York, NY 10305
American Hydromath Co., Buckwheat Bridge Rd., Germantown, N.Y. 12526
Apelco Marine Electronics, Division of Raytheon, 676 Island Pond Rd., Manchester, NH 03103
Comsat General Corp., 950 L'Enfant Plaza, S.W., Washington, D.C. 20024
DEBEG Marine, Inc., 10 Manor Parkway, Salem, NH 03079
Electro-Nav Inc., 840 Bond Street, Elizabeth, NJ 07201
Furuno U.S.A., 271 Harbor Way, S. San Francisco, CA 94080
Griffith Marine Navigation, Inc., 134 North Avenue, New Rochelle, NY 10801
Harris Communications (RF Communications), 1680 University Avenue, Rochester, NY 14610
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Company, Inc., 9 Smith Street, Englewood, NJ 07631
ITT Mackay Marine, 2912 Wake Forest Road, Raleigh, N.C. 27611
Intermarine Electronics, Inc., Flowerfield Bldg. #7, St. James, N.Y. 11780
Iotron Corp., 5 Alfred Circle, Bedford, MA 01730
Kongsberg North America Inc., 135 Fort Lee Road, Leonia, NJ 07605
Kongsberg Vapenfabrikk, Norcontrol Division, P.O. Box 145, Horten 3191, Norway
Krupp Atlas-Elektronik, 241 Erie Street, Jersey City, NJ 07302
Magnavox Navigation Systems, 2829 Maricopa Street, Torrance, CA 90503
Maritel, Inc., 139 Old Solomon's Island Road, Annapolis, MD 21401
Nav-Com, Inc., 711 Grand Blvd., Deer Park, NY 11729

Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
North American Philips Communication Corp., 55 Knights Bridge Road, Piscataway, NJ 08854
RCA Service Co., Building 204-2, Camden, N.J. 08101
Racal-Decca Marine, Inc., P.O. Box G, #1 Commerce Blvd., Palm Coast, FL 32037
Racal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Southern Marine Research, Inc., 1401 N.W. 89th Court, Miami, FL 33172
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS
Alfa-Laval, Inc., 2115 Linwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
E.I. Dupont De Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
Henkel Corporation, 4620 West 77th Street, Minneapolis, MN 55435
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
Mobay Chemical Corporation, Plastics & Coatings Div., Pittsburgh, PA 15205
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

PETROLEUM SUPPLIES
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
Tioga Pipe & Supply Company, 2450 Wheatsheaf Lane, Philadelphia, PA 19137

PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
P.J. Plishner Marine, 2 Lake Avenue Ext., Danbury, CT 06810
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schottel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Steamco Corporation, 1020 East 8th Street, Jacksonville, FL 32206
Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica Delaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652
Waukesha Engine Division, Waukesha, WI 53187

PUMPS—Repairs—Drives
Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica Delaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092

REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Modular Systems, 164 Franklin Avenue, Rockaway, NJ 07866
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SAFETY EQUIPMENT
ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, FL 33020
Datrex, 3795 N.W. 25th Street, Miami, FL 33142

SANITATION DEVICES—Pollution Control
American United Marine Corp., 575 Madison Avenue, New York, NY 10022
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Somat Corporation, Pomeroy, PA 19367

SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

SHACKLES
West Footscray Engineering Works P/L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12. Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzs de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergeron Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Jeffboat, Inc., Jeffersonvilie, Ind. 47130
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361
Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Sun Ship Inc., Chester, PA 19013
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2

SHIPPING—PACKING
Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
Crane Packing Co., 435 Regina Drive, Clarksburg, MD 20734

SHIP STABILIZERS
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

SURVEYORS AND CONSULTANTS
Francis B. Crocco. Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 5 Marine View Plaza, Hoboken, NJ 07030

TANK LEVELING INDICATORS
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
Vitronics, P.O. Box 42305, Houston, TX 77042
Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

TERMINALS—Oil-Transfer
Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Ocean Salvors Company, One World Trade Center, New York, NY 10048
Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

TRAINING SERVICES—Simulator
Ship Analytics, Park Circle, Centerport, NY 11721

VALVES AND FITTINGS
American United Marine, 575 Madison Avenue, New York, NY 10022
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
Winel, Inc., 34655 Mills Road, North Ridgeville, OH 44039
Zidell Explorations, Inc., (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Specific Equipment Company, P.O. Box 55626, Houston, TX 77055

WINCHES AND FAIRLEADERS
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134
Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

ZINC
Smith & McCrorken, 153 Franklin St., New York, N.Y. 10013

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. **If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266**

U.S. SHIP CONSTRUCTION CONTRACTS

1 — MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Owner	Total No.	Type	Hull Nos.	Est. GT (Each)	Est. DWT (Each)	Est. HP (Each)	Est. Total Cost ($Mil.)
Atlantic Marine	Blue Lines	1	Cargo	354	200	—	D-350	0.6
Avondale Shipyards	American President Lines	3	Container	2329-31	40,500	30,300	D-43,200	330.0
	Suwanee River	1	Tug/Barge	2327-8	16,000	41,300	D-18,200	37.7
	Ogden Marine	2	Products	2318-19	25,000	42,000	D-15,000	100.0
	Corps of Engineers	1	Dredge	2322	9,900	8,000	D-10,400	67.5
	United States Trust	1	Dredge	2332	—	9,980	D-13,800	40.0
	Exxon Company U.S.A.	3	Products	—	26,000	43,000	D-17,000	300.0
Bath Iron Works	Corps of Engineers	1	Dredge*	402	6,000	—	D-7,000	65.0
	Falcon I Sea Transport	2	Tanker	404-5	24,000	33,900	D-14,720	142.0
	Calif. & Hawaii Sugar	1	Barge*	406	21,000	37,000	—	25.0
Bay Shipbuilding	Beker Shipping	1	Bulk Barge	728	20,000	41,000	—	NA
	Ocean Barge	1	Bulk Barge	730	17,500	33,000	—	NA
Bethlehem-Sparrows Point	Artemis Marine	1	Tug/Barge	4652	32,000	47,000	D-18,200	52.6
	First-Fifth Tug/Barge	5	Tug/Barge	4653-7	32,000	47,000	D-18,200	266.0
Equitable Shipyards	City of New York	1	Ferry	1714	3,000	4,200	D-7,800	15.0
General Dynamics-Quincy	Coastwise Shipping	4	Tank Barge	73-75, 82	—	27,000	—	57.0
	New England Electric	1	Collier	—	23,500	36,000	T-12,000	60.0
	Watermanship Steamship	1	RO/RO-Cont.*	85	18,500	23,500	T-32,000	61.0
Levingston Shipbuilding	Asco Falcon I	2	Bulk	752-3	23,500	36,000	D-14,800	80.0
National Steel & SB	Union Oil	1	Products	417	24,500	37,500	T-13,000	50.0
	American Tankships	2**	Products	419-20	24,500	37,500	D-11,400	102.0
	American Trading Trans.	3	Products	424-6	27,000	44,000	D-11,400	153.0
Norfolk Shipbuilding	Coordinated Caribbean	1	Barge	34	4,000	6,680	—	21.2
Southern Shipbuilding	Great Lakes Dredge	1	Dredge	120	3,300	4,400	D-3,000	NA
Sun Ship, Inc.	Waterman Steamship	2	RO/RO-Cont.	679-80	18,500	23,500	T-32,000	137.5
Upper Peninsula SB	State of Michigan	1/4	Tug(1)/ Barge(4)	001-5	5,400	10,000	D-8,000	35.5
Wiley Manufacturing	Texas Gulf	1	Dredge	108	2,800	3,800	DE	NA

* Subcontracted from Sun Ship. ** Option for three additional sister ships.

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Owner	Name	Type	Delivery
Alabama Maritime, Mobile, Ala.	Diamond M	Diamond M. Hunter	Semisub.	11/81
	"	Diamond M. Eagle	"	4/82
	"	Diamond M. Falcon	"	1/83
Baker Marine, Ingleside, Texas	Huthnance Dig.	Charger I	Jackup	10/81
	Huthnance Dig.	Charger II	"	11/81
	Magnum Marine	Mr. Demp	"	11/81
	Magnum Marine	Robert N. Haskin	"	5/82
	Magnum Marine	Robert W. Womack	"	6/82
	Pool Offshore	Pool Offshore Rig 54	"	12/81
	Savage Drilling	Ponca	"	8/82
Bethlehem Steel, Beaumont, Texas	Griffin-Alexander	Griffin-Alexander V	Jackup	5/82
	"	Griffin-Alexander VII	"	9/82
	"	Griffin-Alexander VIII	"	3/82
	Houtech Energy	Houtech II	"	3/82
	" "	Houtech III	"	3/82
	" "	Houtech IV	"	9/82
	Marine Drilling	J. Storm XVIII	"	12/82
	O & U Drilling	Nordrill II	"	1/82
	Teledyne	Mobile 20	"	11/82
	Alfa Drilling	(unnamed)	"	1/83
Bethlehem Steel, Sparrows Point, Md.	Griffin-Alexander	Griffin-Alexander IV	Jackup	3/82
	"	Griffin-Alexander VI	"	6/82
	Temple Drilling	Cheyenne	"	4/82
	Phoenix Seadrill	(unnamed)	"	7/82
Chicago Bridge & Iron, Pascagoula, Miss	Dixilyn-Field	DF-77	Jackup	6/82
	Blocker Drilling	(unnamed)	Submersible	10/82
	" "	(unnamed)	"	2/83
General Dynamics, Charleston, S.C.	Bailey & Shannon Inc.	Bill Bailey	Jackup	12/81
	" "	Bob Warner	"	12/81
	" "	Burr Rayburn	"	4/82
	" "	Herb Williamson	"	6/82
	" "	Mark Jones	"	1982
	" "	Mr. Webster	"	1982
Gulfport Shipbuilding, Port Arthur, Texas	Perfordora S.A.	(unnamed)	Jackup	5/82
Ingalls Shipbuilding, Pascagoula, Miss.	Transworld Drilling	Transworld 72	Submersible	12/81
	" "	Transworld 73	"	2/82
	Bonito Offshore	Bonito I	Jackup	7/82
	" "	Bonito II	"	4/83
	Chiles Drilling	Yucatan	"	12/81
	Global Marine	Glomar Main Pass I	"	11/81
	"	Glomar Main Pass II	"	1/82
	"	Glomar Main Pass III	"	5/82
	"	Glomar Main Pass IV	"	9/82
	Huthnance Drilling	Vanguard I	"	11/81
	"	Vanguard II	"	10/82
	Keyes Offshore	Keyes 302	"	11/81
	" "	Keyes 303	"	7/82
Levingston Shipbuilding, Orange, Texas	Noble Drilling	Ed Holt	Jackup	11/81
	" "	(unnamed)	"	12/82
	Compania Perforadora	(unnamed)	"	5/82

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981 (Con.)

Builder	Owner	Name	Type	Delivery
Marathon LeTourneau, Brownsville, Texas	Chiles Drilling	Seabee	Jackup	12/82
	Global Marine	Glomar Adriatic V	"	8/83
	" "	Glomar Adriatic VI	"	10/83
	" "	Glomar Adriatic VII	"	1/84
	Penrod Drilling	Penrod 86	"	12/81
	" "	Penrod 88	"	3/82
	" "	Penrod 90	"	6/82
	" "	Penrod 98	"	4/84
	Rowan Drilling	(unnamed)	"	12/82
Marathon LeTourneau, Vicksburg, Miss.	Penrod Drilling	Penrod 87	Jackup	6/82
	" "	Penrod 89	"	9/82
	" "	Penrod 91	"	1/83
	" "	Penrod 99	"	4/84
	Rowan Drilling	Gilbert Rowe	"	11/81
	" "	Cecil Provine	"	2/82
	Rowan Drilling	(unnamed)	Jackup	12/83
	" "	(unnamed)	"	11/84
	" "	(unnamed)	"	3/85
	" "	(unnamed)	"	1985
Vemar Shipyard, Channelview, Texas	Atwood Oceanics	Richmond	Submersible	11/81
	Cliffs Drillling	(unnamed)	Jackup	10/81
	" "	(unnamed)	"	12/81
	Penrod Drilling	Penrod 201	Submersible	3/82
	" "	Penrod 202	Submersible	7/82
	" "	Penrod 203	Submersible	11/82
	Macan Offshore	(unnamed)	Jackup	4/82
	Goldrus Marine	(unnamed)	Submersible	3/83

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Type	Navy Nos.	No.	Est. Contract Value, $Mil.
Avondale Shipyards	Fleet Oiler	AO-178-9	2	$144.0
	"	AO-180, 186	2	146.2
Bath Iron Works	Guided-Missile Frigate	FFG-21, 24, 26	3	178.2
	"	FFG-29, 32, 34	3	147.0
	"	FFG-36, 39, 42	3	209.9
	"	FFG-45, 47, 49	3	195.4
	"	FFG-50, 53, 59	3	——
Boeing Marine Systems	"	PHM-2	1	21.3
	Missile Patrol Hydrofoil	PHM-3-6	4	178.0
Derecktor Shipyard	Med. End. Cutter*	WMEC-905-13	9	350.0
GD-Electric Boat	Attack Submarine	SSN-699	1	428.0
	"	SSN-702-4	3	1,302.9
	"	SSN-705-10	6	2,605.6
	"	SSN-719-20	2	——
	Trident Submarine	SSBN-726	1	285.4
	"	SSBN-727-9	3	699.4
	"	SSBN-730	1	354.5
	"	SSBN-731-2	2	699.0
	"	SSBN-733	1	401.0

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981 (Con.)

Builder	Type	Navy Nos.	No.	Est. Contract Value, $Mil.
Ingalls Shipbuilding	Missile Destroyer	DDG-996	1	350.0
	Destroyer	DD-997	1	231.0
	Aegis Missile Cruiser	CG-47	1	287.8
	" " "	CG-48	1	298.0
	" " "	CG-49, 50	2	667.1
Lockheed Shipbuilding	Sub. Tender	AS-41	1	209.5
	Dock Landing Ship	LSD-41	1	338.6
Marinette Marine	Fleet Ocean Tug	T-ATF-172	1	8.4
National Steel & SB	Destroyer Tender	AD-43-44	2	347.0
	Cable Repair Ship	T-ARC-7	1	107.0
t News SB	Attack Carrier	CVN-70-71	2	1,718.6
	Attack Submarine	SSN-712-15	4	388.0
	"	SSN-716-18	3	380.8
	"	SSN-721-3	3	675.0
Peterson Builders	Patrol Gunboats **	F-PGG-2-9	8	70.1
	Salvage Ship	ARS-50	1	54.5
Tacoma Boatbuilding	Missile Patrol Chaser **	F-PCG-1-4	4	52.5
	Med. End. Cutter*	WMEC-902-4	3	97.5
Todd-San Pedro	Guided Missile Frigate	FFG-19, 23, 25	3	151.0
	"	FFG-27, 30, 33	3	147.0
	"	FFG-38, 41, 43	3	214.8
	"	FFG-46	1	67.7
	"	FFG-51, 54	2	—
Todd-Seattle	Guided-Missile Frigate	FFG-22	1	50.4
	"	FFG-28, 31, 35	3	147.0
	"	FFG-37, 40	2	143.2
	"	FFG-44, 48	2	135.3
	"	FFG-52	1	—

*For U.S. Coast Guard. **For Saudi Arabia.

SNAME-New York Honors Past Chairmen, Hears Paper On Hopper Dredge Design

Officials at the first meeting of SNAME's New York Metropolitan Section, seated left to right: **John Higginbotham,** member of the executive committee, John J. McMullen Associates, Inc.; **Curtis Nelson,** meeting chairman, American Bureau of Shipping (ABS); **Howard Blanding,** papers chairman, ABS; **Joseph Connors,** secretary-treasurer, consultant; **Eric Lithen,** immediate past chairman, Marine Technical Associates. Standing, left to right: **John Martin,** author, Dredge Technology Corp.; **Louis Mauriello,** author, consultant; **John Daidola,** vice chairman, M. Rosenblatt & Son; **Neil Reddy,** chairman for 1981-82, ABS Tech; **William Garzke,** publicity chairman, Gibbs & Cox, Inc.; and **Richard Wahlenmeier,** membership chairman, R.R. Wahlenmeier Co., Inc.

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers held its inaugural 1981-82 meeting recently at the Buttonwood Restaurant with past chairmen's night. The event brought back some 19 past section chairmen. **Eric Lithen,** the immediate past chairman, was the guest of honor and was presented a plaque by past chairman and now secretary of SNAME **Robert Mende**.

A technical paper, "Hopper Dredges and Certain Aspects of Their Design," was presented by **John Martin** and **Louis Mauriello**. The paper described the physical and operational features of new hopper dredges, problems in their design, and important features of new hopper dredges which have been recently designed or constructed for private contractors and the Army Corps of Engineers. The paper highlights these complex but highly versatile craft which are essential in the construction and maintenance of coastal port channels. Particular reference is given to regulatory requirements, an important consideration in the design of these ships.

New Fuel Efficient Panamax Bulk Carrier Christened At Burmeister & Wain Shipyard

Burmeister & Wain Shipyard, Copenhagen, has delivered the M/S Susan B, the fourth of the yard's fuel efficient Panamax bulk carriers of approximately 64,000-dwt. The vessel was built for Eljay Shipping, Inc., Monrovia, Liberia, and named by **Mrs. Jane MacMichael,** wife of **Ethan MacMichael,** group vice president, Philipp Brothers, USA.

Great interest has been shown in this new type of Panamax bulk carrier, primarily because of the low fuel oil consumption of about 37 tons daily at an average speed of 15 knots.

Burmeister & Wain Shipyard has an additional 13 bulk carriers of this type currently on order.

The ship is provided with seven large almost identical hatches with inclined hatch coamings and McGregor hydraulically operated steel hatch covers.

Holds 1, 3, 5 and 7 can be utilized for the transportation of ore.

Water ballast is carried in wing tanks, bottom tanks, in fore- and aft-peak and in hold 4 — a total water ballast capacity of 30,400 tons.

The ship is equipped with the most up-to-date navigation instruments: Loran, radio direction finder, radar, satellite navigator, autopilot and gyrocompass.

A Loadmaster is installed on the bridge, along with instruments for remote control of the main engine, to permit unmanned engine room operation.

The main engine consists of a five-cylinder long-stroke engine, B&W type L80GFCA, with an output of 12,600 bhp at 90 rpm. The auxiliary machinery consists of two B&W engines, type 5T23-LH, each powering a generator of 500 kw and a turbogenerator of 500 kw.

A sound insulated control room is located, with control instruments for the machinery, in the engine room on the port side.

The steering gear is of the rotary vane type. The B&W type spade rudder is 44 square meters and weighs approximately 90 tons. It can be turned from 35 degrees in one direction to 30 degrees in the other in 28 seconds.

M/S SUSAN B	
Length, overall	738.2 ft.
Length, between perpendiculars	701.3 ft.
Breadth, molded	105.8 ft.
Depth, molded	59.1 ft.
Draft, maximum	43 ft.
DWT	64,000 tons
Main Engine	B&W 5L80GFCA at 12.6 bhp
Auxiliary Engines	(2) B&W 5T23LH and Turbogenerator
Speed, loaded	15.4 knots
Hold capacity	79,100 m^3
Cruising range	21,500 nautical miles

Free Color Wall Poster Features Full Crane Line Of Marine Packings

The new full line of mechanical packings is featured on a colorful wall poster, "Packing Recommendation Chart," suitable for use in office and shop. The John Crane® Rite-Pak™ packing line from Crane Packing Company is displayed in an easy-to-read format. Non-asbestos and asbestos products are included, listing packing styles, temperature and pH ranges, and services.

Non-asbestos packings have temperature ranges up to 1000° F (538° C) and pH ranges from 0 to 14. To obtain a free copy of the chart,

Write 36 on Reader Service Card

Publish Brochure On Kockumation's Cargo Distribution Calculator

A six-page brochure defining the capabilities of its Loadmaster D50—an advanced digital calculator designed to meet modern cargo handling requirements—has been published by the marine division of Kockumation AB, Malmo, Sweden.

The brochure contains text, photographs, and line drawings, plus a table of specifications for the digital microcomputer. The brochure describes the wide range of calculations the instrument can provide for use either aboard ship or on shore.

U.S. Kockumation representative and service center for the East Coast and Great Lakes is Nav-Com of Deer Park, N.Y.; on the West Coast it is Collins Marine Corp. of San Francisco, Calif.; and on the Gulf Coast it is Maricon Instruments, Inc., of Gretna, La.

For a free copy of the brochure,
Write 37 on Reader Service Card

Saudis Order Four Ro/Ro's From Kockums For $236 Million

Kockums Varv, AB, Malmo, Sweden, has been awarded a $236-million order by the Saudi National Shipping Co. to build four large ro/ro vessels.

The ro/ro's are the largest of their kind in the world at 38,500 dwt each, with a capacity of 2,000 20-foot-equivalent units. The vessels are scheduled for delivery from the third quarter of 1983.

The Saudi National Shipping Co. currently operates two 23,000-dwt container and ro/ro vessels on its Middle East-U.S. service where the new vessels will trade.

Name John C. Trickey VP At Noble, Denton Assoc.

Noble, Denton & Associates Inc., Houston, marine consultants and ocean engineers, a subsidiary of Noble, Denton & Associates Ltd. of London, recently announced the appointment of **John C. Trickey** as vice president. Mr. **Trickey** transferred from the London office where he was manager of engineering, and in his new role shall be responsible for all areas of the company's engineering activity. Mr. **Trickey** has been extensively involved in the offshore industry since 1973 in engineering, construction, and operations.

Literature Available On New Electro-Nav EN-RTAG 2-Tone Alarm Generator

Electro-Nav president **Robert E. Negron** announced recently that his company has introduced the EN-RTAG, a new compact, low cost, automatic two-tone alarm signal generator which meets all pertinent IMCO and FCC requirements for radiotelephone-equipped vessels.

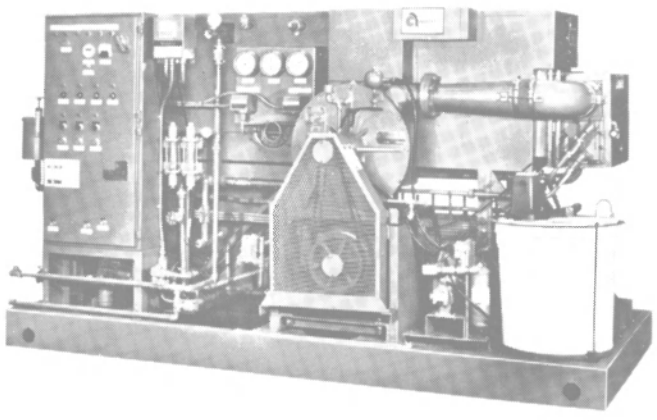
FCC regulation requires every U.S.-flag vessel over 300 gross tons be equipped with a two-tone alarm signal generator which can be connected to a radiotelephone transmitter for transmission of distress alarm signals on the 2182kHz voice frequency channel.

The EN-RTAG complies with all the requirements of FCC DOCKET 80-87 and the new proposed IMCO specifications, including frequency and signal duration tolerances, permissible intervals between signals, and signal amplitude radios. It is fully adaptable for use with any radiotelephone transmitter approved by the FCC for transmission of distress signals on 2182kHz. The unit is also approved by Liberian Bureau of Maritime Affairs.

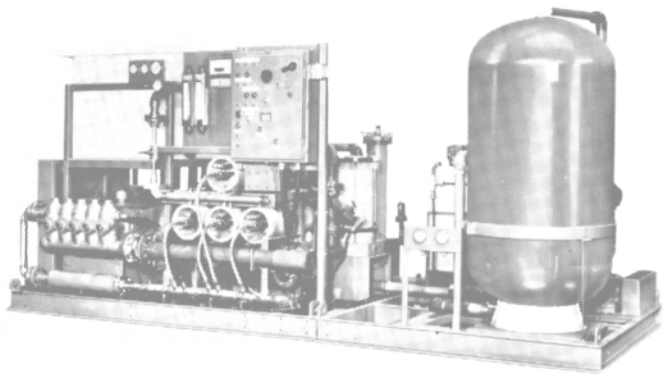
For additional information on Electro-Nav's new EN-RTAG and other equipment designed to meet the provisions of IMCO Resolution A.383,
Write 26 on Reader Service Card

Only Aqua-Chem offers all these choices for your offshore/marine fresh water needs.

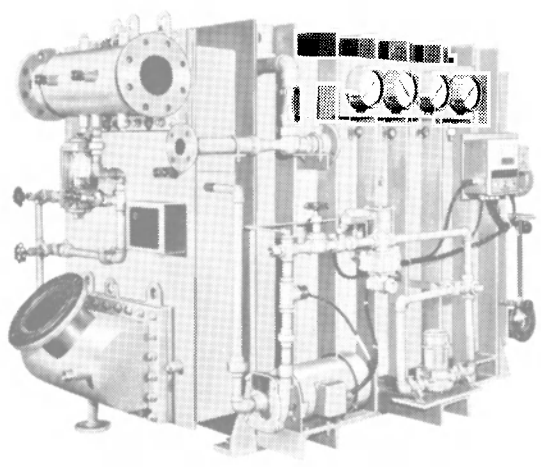
Vapor Compression. Heat Recovery. Reverse Osmosis. And Two-Stage Flash Distilling. Whichever is best for your operation, Aqua-Chem can supply it — from ready stock for fast delivery. We also offer a no-obligation engineering evaluation to help you make the best choice possible. Whatever your saltwater conversion needs, let us put our experience and reputation as "The Offshore Water Company" to work for you.



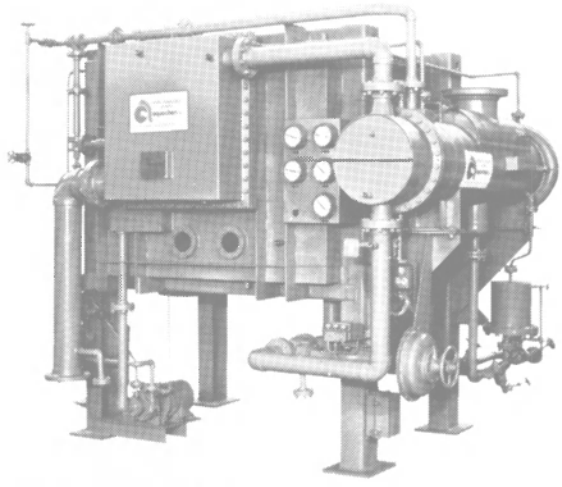
Vapor Compression Units Standard sizes: 100, 200, 300, 400, 600, and 1200 GPH; larger sizes available to 250,000 GPD. All models driven by electric motor.



Acro-Pac® Reverse Osmosis System with hollow-fiber type module is a complete packaged system for producing potable water from seawater. Includes pre-treatment and cleaning equipment, chemical feeder and turbidity separator. Standard sizes range from 5,000 to 25,000 GPD with larger sizes available.



Waste Heat Recovery Evaporators utilize diesel engine's jacket water or steam for efficient use of energy that might otherwise be wasted. Supplied in complete packages — 200 to 1000 GPH.



Two-Stage Flash Distilling Plant evaporates water at temperatures well below the atmospheric boiling point. Ensures scale-free, efficient operation. Sizes: 8000 to 100,000 GPD.

Stocked parts and service available in Milwaukee, New Orleans, Aberdeen, Stavanger (Norway), Singapore.

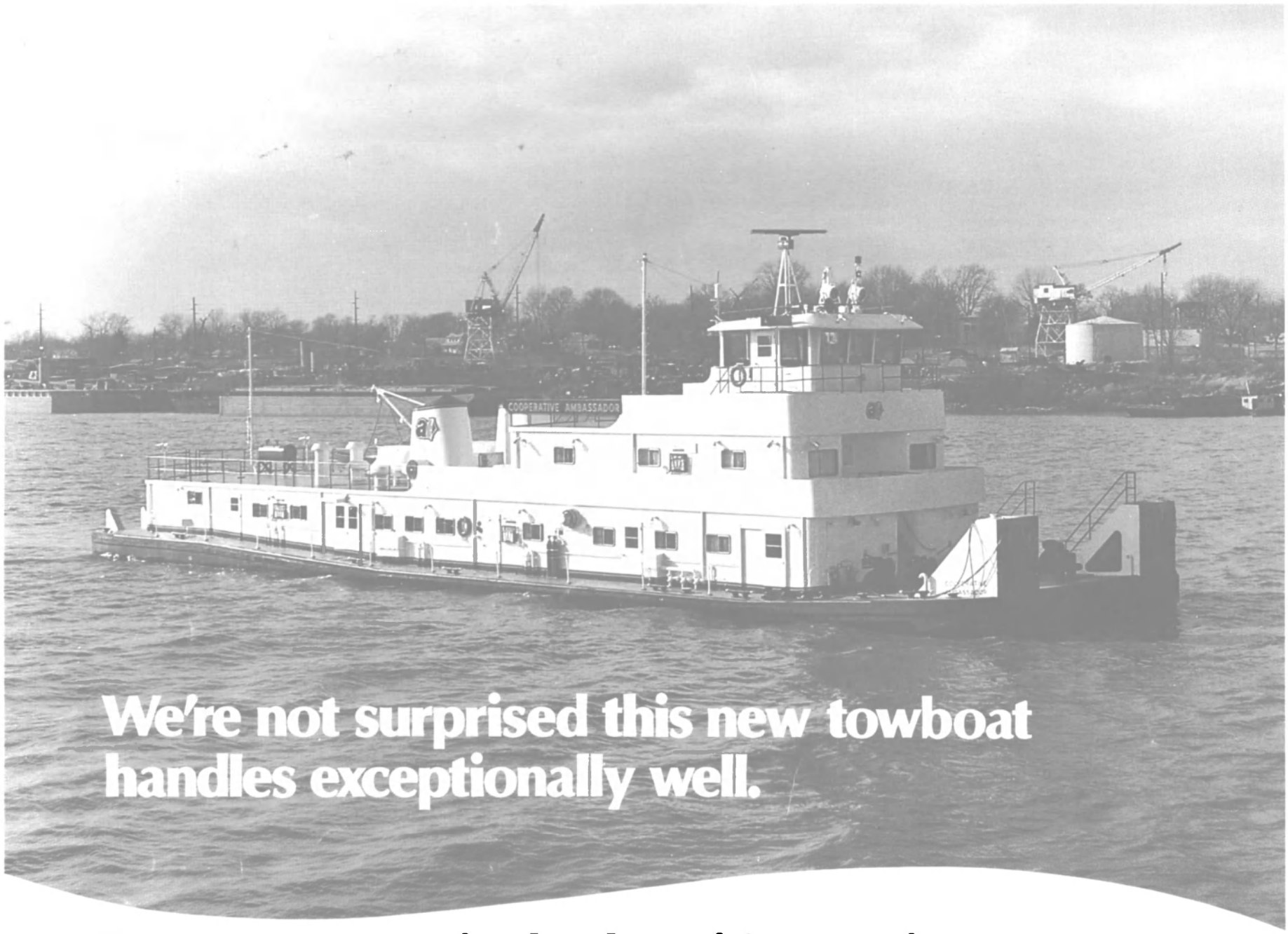
Aqua-Chem, Inc., Water Technologies Division, P.O. Box 421, Milwaukee, Wisconsin 53201. Telephone (414) 962-0100. Telex: 26679.

WATER TECHNOLOGIES DIVISION

aqua-chem, Inc.

WT81-120

Write 407 on Reader Service Card



We're not surprised this new towboat handles exceptionally well.

But we were surprised to learn it's operating 10% ahead of performance expectations.

The 4200-hp Cooperative Ambassador was built for Agri-Trans the same way we build all Jeffboat vessels—with steadfast dedication to quality.

It has a 5/8" hull and a double-bottom engine room. But such durable construction should come as no surprise. All Jeffboat towboats are assembled with the heaviest, thickest and toughest hulls of any towboat built for service on America's inland waterways.

Besides its durability, Agri-Trans was very impressed with the Cooperative Ambassador's excellent maneuverability. But we're not surprised. All Jeffboat towboats handle exceptionally well.

We were surprised though when Agri-Trans told us about the Ambassador's performance. The new towboat is running 10% ahead of its scheduled workload.

That's some accomplishment even for a Jeffboat towboat.

To learn how we can help meet your water transportation needs, contact: Jeffboat Incorporated, P.O. Box 610, Jeffersonville, Indiana 47130. (812) 288-0421.

JEFFBOAT

America's Largest Inland Shipbuilder

Write 228 on Reader Service Card